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W. T. Jackman, professor of transportation, University of Toronto, in an address before the Toronto Railway Club, attacks arguments in favor of the proposed seaway, pointing out that cost estimates are too conservative, that its use by ocean steamers would not be economical, and that it would be of no benefit to the farmers.

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A description of a new type of car recently perfected by this company, which, with its automatic, mechanical unloading feature, promises to revolutionize shipping methods for bulk granular materials.

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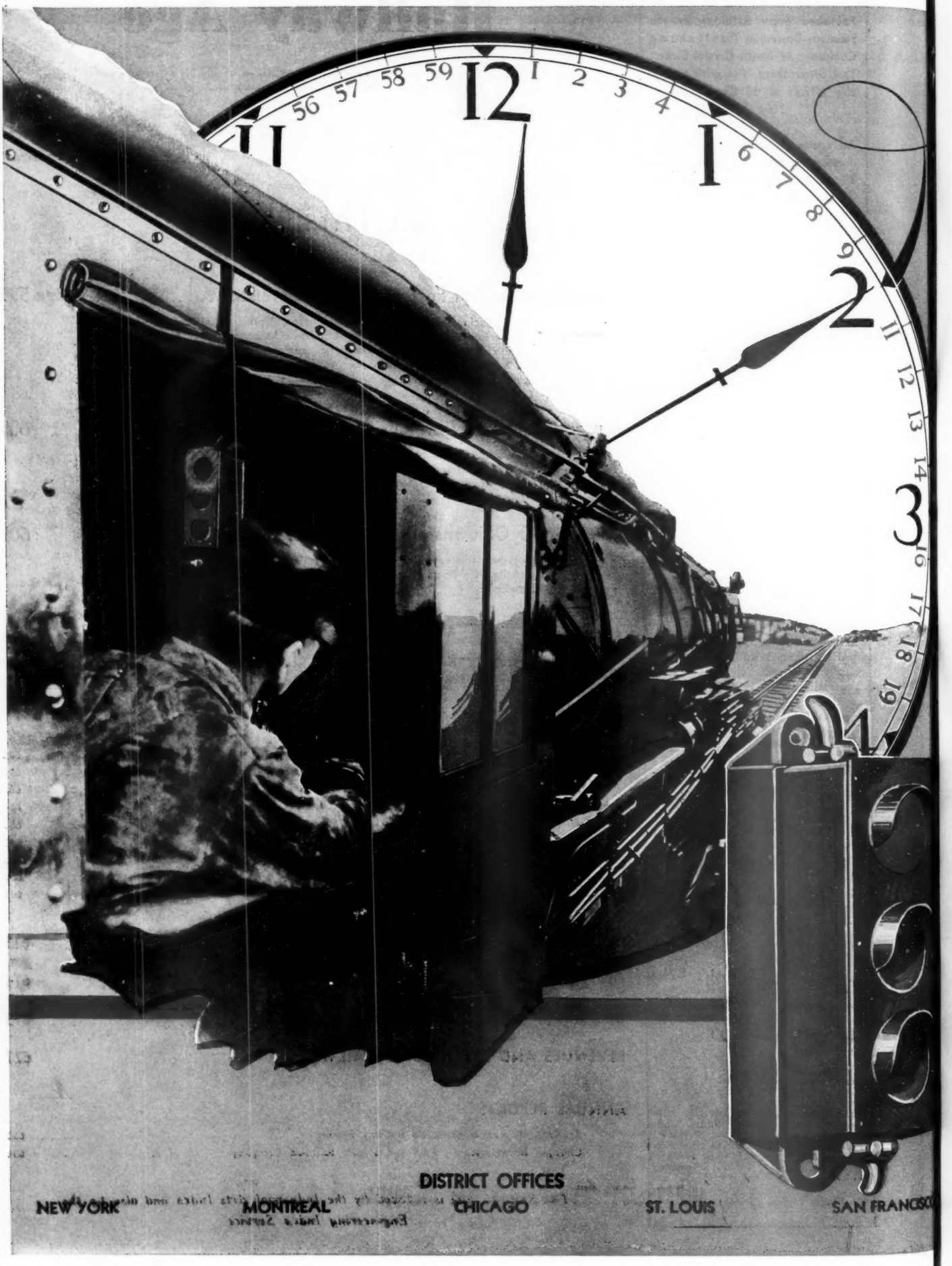
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RAILWAY AGE

How The I. C. C. "Helps" The Railways

While members of the Interstate Commerce Commission continue to voice public utterances in which they express friendliness and solicitude for the railways, a majority of them continue to so vote in the decision of important cases as to show little or no disposition to help the railroads in the present emergency.

The commission so handled the matter of a loan by the Reconstruction Finance Corporation to the Missouri Pacific as not only to create a public impression that there was something scandalous about it, but also as to illustrate that the official attitude of the commission toward the railroad industry, which the law says it is the government's policy to "foster and preserve in full vigor", is always likely to be more hostile than that of any other government body, excepting, perhaps, the United States Senate. With the question of whether the Reconstruction Finance Corporation should have made a loan of $12,800,000 or any other amount to the Missouri Pacific this paper is not much concerned. The Reconstruction Finance Corporation was created to make loans upon satisfactory collateral to corporations that needed them, not for the purpose of helping these corporations, but to make available more effective credit for the conduct of the country's business. The Reconstruction Finance Corporation decided that to make the loan in question to the Missouri Pacific would help to accomplish the purpose for which it was created. Part of the money was to be used in reducing certain bank loans. The commission said that it gave its approval "with some reluctance" and that "we are not convinced that the Reconstruction Finance Corporation should be expected to take up bank loans of this character. We yield our own views to those of that body which, as we construe the law, is charged by Congress with the responsibility of determining that question."

Why This "Reluctance?"

Why did the commission thus express "reluctance" when the Reconstruction Finance Corporation believed that the loan should be made and had "the responsibility of determining that question"? The explanation to our mind, after having for years closely followed the commission's regulation of railways, is easy enough. The decision of the Reconstruction Finance Corporation was reached by a body of business men who had no special prejudices against railway bankers or railway managers and no special responsibility for the present condition of the railways, or their past or future regulation, and therefore decided the question on its merits as they would have decided it if it had involved any other kind of a business concern. The commission, after having for many years regulated the railways and their relations with their bankers in the fetid political atmosphere of Washington, has developed certain concepts, formulas and prejudices regarding financing and business management in general, and railroad financing and management in particular. Not being obliged to deal with the realities of business, it has become extremely self-righteous, and like most self-righteous people has reached the place in its intellectual and moral development where any transaction that does not fit its preconceptions and prejudices is wrong.

The Missouri Pacific and many other railways need and are seeking loans from the government largely because of the way in which they have been regulated by the commission. As the government has been for years doing what it could to ruin them at one end of Pennsylvania avenue, there are perhaps special reasons why it should make efforts to save them at the other end of the avenue. But, of course, the commission cannot see this because it is so self-righteous. Anyway, the Reconstruction Finance Corporation apparently had decided that the loan ought to be made before it heard from the commission, and that was enough to stamp its decision as wrong. Anything initiated by anybody excepting the commission to help the railroads is wrong, as is shown by the fact that the commission regularly disapproves of almost everything the railways propose for the purpose of helping themselves. The commission is not only self-righteous, but omniscient. It is true that none of its members ever had experience in important affairs before his appointment; but appointment to the commission and the power over the railways that it gives are an ample substitute for experience and demonstrated ability.

The Southern Pacific Case

We see this shown in the commission's recent decision in another case—that of the Southern Pacific lines for authorization to establish lower rates between the Atlantic and Pacific seaboards than to intermediate

points. The Transportation act declares it to be the policy of Congress "to foster and preserve in full vigor both rail and water transportation". Officers of the Southern Pacific lines, who have devoted their lives to the railroad business, testified to their belief that the fixing of the proposed rates would enable them to get traffic that would increase their net earnings. The commission denied their application upon three principal grounds—first, that it would promote competition with the intercoastal steamship lines, which already are competing until they are not making any money; second, that it would involve unfair discrimination against intermediate territory; third, that the proposed rates would not be remunerative to the Southern Pacific lines. The rates of the steamship lines are not subject to regulation by the commission while those of the railways are, and the railways surely are in as bad a financial condition as the steamship lines. Therefore, it would appear that the commission might have shown as much solicitude for the railways as for the steamship lines. The intermediate territory would not be injured by the proposed adjustment of rates because, under the adjustment already in effect, the steamship rates between the seaboards are lower than the railway rates to intermediate territory.

There is left the question of whether the proposed rates would be compensatory to the Southern Pacific lines. Considering a railway as a whole and its rates as a whole, a compensatory average revenue per ton per mile is one which, under normal business conditions, will enable it to derive an adequate return from handling all its traffic. For twelve years the commission has been directed by the Transportation act to establish for the railways a level of rates which, in this sense, would be compensatory, and has not done so. However, a compensatory rate is not necessarily one which is equal to the average revenue per ton-mile that the rates as a whole must yield in order to produce a fair return. Rates for specific distances on specific commodities and under specific competitive conditions must be so adjusted as to get traffic. A rate may be much less per ton-mile than the average of all rates, and yet be compensatory in a very true sense if it gets traffic which could not be got at a higher rate, and the additional revenue from which exceeds the additional operating cost that the movement of the additional traffic causes.

Overruling the Experts

The officers of the Southern Pacific lines believed that the rates they proposed would be compensatory because, as low as they would be, they would get traffic the revenue from which would exceed the additional operating cost that its handling would cause. The commission decided that "on this record we have not been persuaded that, as a whole, the rates proposed by the applicants would be reasonably compensatory". Thus it subordinated the judgment of the officers of the Southern Pacific lines to its own judgment as to what would be best for the Southern Pacific lines. Just when and where did the members of the commission get the expert knowledge and judgment which warranted them in reaching this conclusion? They never did get them, and they haven't them now. This was simply another example of the expert judgment of men who have devoted their lives to the railroad business being over-ridden by a body of so-called "experts", most of whom, in fact, know very little about railroad traffic, rate making or management. In the decision Chairman Porter concurred, in spite of his recent address expressing a desire to help save the railroads.

Senator Couzens has introduced a measure to transfer from the Reconstruction Finance Corporation to the commission the complete determination of what loans shall be made by the government to the railroads. There is being considered in Congress a bill to substitute for the rate-making provisions of the Transportation act a "flexible" rule which would give the commission virtually unlimited discretion in regulating rates and determining how much the railways may earn. A clever writer said a short time ago that the Interstate Commerce Commission should be abolished because it was created to ruin the railroads and its work is done. The railways are passing through the worst period in their history, and the commission knows it, but even at such a time it can find nothing more constructive to do than to make a scandal in the newspapers about a loan to a needy railroad, which, significantly enough, was favored by another government body which has done nothing to put the railways in their present plight. What the railroad situation demands is, not more power for the commission, but either intelligent and constructive exercise of the power that it has, or a great reduction of its power by Congress.

Shall We Destroy Leadership?

However, not much progress in the reform of government can be expected from a Congress most of whose members, when the people are being bled to death with taxation, can find no way to balance the government budget excepting that of increasing taxes, especially those on large incomes. During this depression there has been loud and long complaint because of lack of leadership in government and business. The people at the polls have driven almost all men of brains out of public life into business and the professions. This is why there is such a lack of leadership in public affairs. Now Congress proposes to raise the taxes on large incomes in order to reduce as much as possible the incentive of men capable of leadership to seek success in business and the professions. The Russian bolsheviks rid themselves of men capable of leadership by killing them. Are the people of this country going to rid themselves of men of brains even in business and the professions by taxing to death the desire for success and by giving government bureaucrats control over the activities of men of ability that will make business management as incompetent as government management?

We Must Learn to Sell Our Service

During the past decade the railroads have made considerable progress in the art of merchandising transportation. The old policy, which in some cases was little more than a "take it or leave it" attitude, has undergone a profound change. The railways are among the large users of advertising space in the newspapers and magazines. Some of them have used the radio to tell their sales story, and in various ways advertising and selling efforts are increasing in intelligence and effectiveness.

Many railroads have enlisted their employees as solicitors of business, and the employees' magazines have been of great value in the success of this effort. One important effect of interesting employees in such efforts transcends the money value of the traffic they secure. This is the fact that it gets them to thinking about railroading as a whole, and beyond the narrow groove of their daily jobs.

However, notwithstanding the progress that has been made by the railroads in awakening a selling sense in their personnel, there is apparently much that remains to be done. Railroad selling still needs that essential attention to detail which makes in that art a finished job. The luxury and comfort of the limited train is forgotten when the patron is irritated by thoughtlessness on the part of train crew, porters or other attendants. There is a right and a wrong way to collect tickets, and not all employees have learned the right way. The idea that the amount of one's tip should determine the quality of service is too general to do railroad passenger service any good.

A traveler recently made a trip from New York to a mid-western city. He occupied a lower berth on the trip west. The porter service was excellent. His shoes were shined, clothes were brushed, baggage handled and all the usual courtesies were extended with flattering attention. He tipped the usual quarter. However, the car was kept so hot during the night that he could not sleep. The temperature was regulated, not to suit the comfort of sleeping passengers, but rather with regard—as the porter naively explained—to that of the train crew occupying the men's smoking room.

On the return trip east the same traveler purchased an upper berth for better ventilation. He slept all night, but his shoes were not shined, his clothes were not brushed and he had to carry part of his baggage. He tipped the usual quarter, but the porter apparently differentiated between the kind of service to which upper- and lower-berth passengers are entitled.

There are too many well-appointed passenger stations over-run with shouting taxicab drivers, newsboys and others. There are stations where it is difficult for privately-owned automobiles to get near the door or platform, because of taxicabs. Local police all too frequently regulate vehicular traffic around railroad stations, sometimes on railroad property, for the benefit of every one but the railroad and its patrons. There are railroad stations where it is more convenient to board a bus than it is to take a train.

No department store, or any other concern in the business of selling, for that matter, permits outsiders and others not in their employ to establish themselves on the premises and annoy customers. The railroads, however, have allowed such conditions to develop until today there are railroad stations which are nothing more nor less than the stamping grounds for well-organized rackets or scenes of verbal terrorism.

A well-trained salesman can sell a man a suit of clothes which he wants and then sell hat and shoes to complete the ensemble, articles which the customer was not quite sure he wanted until they were shown to him. On the other hand, how many ticket agents, train conductors or ticket collectors are able to do more in the line of selling than to stamp or punch one's ticket, collect the money and make change? Ask the average ticket agent for a one-way ticket and seldom is any attempt made to sell a round trip, to secure patronage to other points on one's itinerary, or to persuade one to benefit by some special or reduced fare. One usually gets only what he asks for and is offered nothing. The manner in which a trainman once ordered a commuting passenger to take his feet off a seat lost for his railroad an attractive share of the freight business of an important shipper.

Petty annoyances and inconsistencies, however, are symptoms and not the disease itself. Correct all of them one by one and others would crop up to take their places. What is needed is an entirely new policy from beginning to end—a policy aimed aggressively at fitting the service to the customer's needs (instead of trying to fit the customer to a certain brand of service) and then going out aggressively for business with a proffer of service at a price which is bound to bring it in. Railroads, it is true, have problems peculiar to themselves, but what business does not?

Railroad employees are probably more intelligent and certainly are better compensated than those of businesses which have been mentioned in the preceding paragraphs for purposes of comparison. They are well trained in operating and handling trains. They know how to "railroad" and have the ability to learn. The fact that they have not yet fully mastered the art of selling transportation is, therefore, probably not so much their fault as it is that of the management. Every person in railroad service who has any contact whatever with the public ought to be as thoroughly schooled as any salesman in private enterprise to locate and bring forth the elusive dollar—not by high powered and objectionable methods, but by such thorough knowledge of patrons' wants and a reconstruction of railway service to meet them that a mere outline of the railway's offerings to the prospect will attract his custom.

The Zeolite Treating and Pumping Plant at Addis, La.

Texas & Pacific Overhauls Water Supplies

With unusually varied and poor natural waters, it has gone over practically every station on the road—Sizeable economies obtained

IN keeping with the great strides which the Texas & Pacific has made during the last 10 years in the improvement of practically every phase of its physical property, one of the outstanding improvements has been the overhauling of its locomotive water supply facilities to meet the increased demands of traffic during this period, especially from 1922 to 1930, caused principally by the oil boom in Texas and a resulting increase in business. Ten years ago, in 1922, there were only 3 treating plants on the 2,000 miles of this road, whereas since that time, treatment has been provided at 22 additional points, and practically every remaining station on the main line has been rebuilt or modernized.

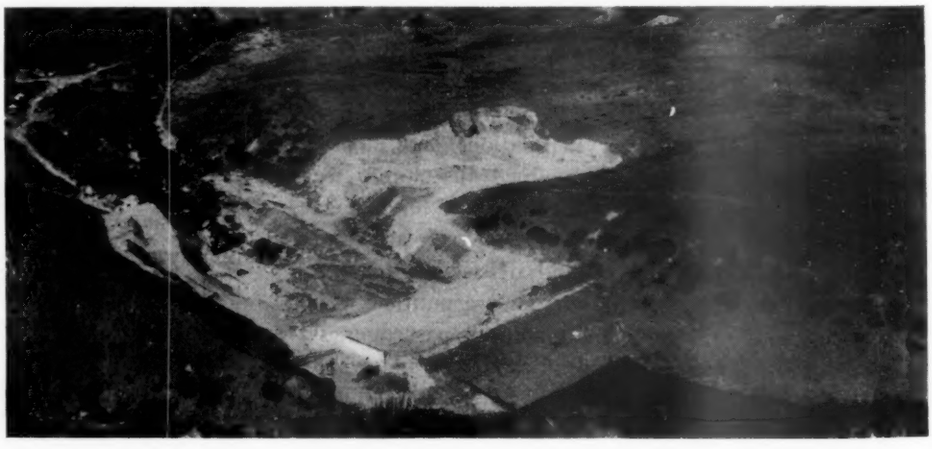
With its more dependable water supplies, improved pumping equipment and better quality of water, marked economies have been effected in pumping and in locomotive maintenance and operation. Since 1915, it is estimated that pumping costs on the road as a whole have been cut more than half and that flue life has been about doubled, while engine runs have been extended far beyond what would have been possible without the more dependable supplies and the better quality of water now available.

Widely Varied Water Problems

Over the lines of the Texas & Pacific, which extend from New Orleans, La., to El Paso, Tex., practically every water station presents a distinct problem in itself, in spite of the fact that, in general, the water-supply problem of the road as a whole divides itself more or less definitely into four main parts according to rainfall and other local conditions. The main districts of the road, from the standpoint of water conditions are Louisiana, considered from New Orleans to some distance beyond Shreveport; eastern Texas, from Texarkana to Dallas; central Texas, from Dallas to Sweetwater; and western Texas, from Sweetwater west to El Paso. Over this territory, from New Orleans to El Paso, a distance of about 1,200 miles, the rainfall varies quite uniformly from about 70 in. annually in Louisiana, to 35 to 40 in. in eastern Texas, 15 to 35 in. in central Texas, and from little or no rainfall to 15 in. in western Texas.

In the Louisiana territory a fair quality of water had been available from streams and bayous along the line, but in the two or three years following 1922 there was a drought which, combined with increased locomotive water consumption, drew the available waters in many of the smaller bayous to such low levels that they became contaminated with highly acid seepage water from swamps. As a result of this condition, which caused extensive damage to locomotive flues, shallow wells were drilled at a number of points, but these also soon became contaminated. In recent years deep wells or city supplies have been resorted to at a number of points, and at one point, Vacherie, La., water has been taken from the Mississippi river. Up the Red River valley from Cypress, La., to Shreveport, large bayous or lakes were relied upon for supplies, but even here the water contained calcium and magnesium carbonate and calcium sulphate, and had to be softened.

Shallow wells were depended upon largely for water in eastern Texas prior to 1920, but both the quantity and the quality of the water from these sources were quite unsatisfactory. Deep wells in this territory produced most unsatisfactory water, containing large amounts of sodium chloride and sodium bicarbonate, and the best waters were obtainable from the few reservoirs which had been built to impound surface run-offs. The same situation with regard to shallow-well waters prevailed quite generally in central and western Texas, but with the exception of a few surface supplies and deep wells, the shallow wells were relied upon to meet the water requirements.



A General View of the New Dam and Reservoir at Toyah, Tex., Under Construction

With the oil boom in Texas, which started in the western part of the state in 1926, the demand for water increased approximately 100 per cent in the territory west of Toyah, and approximately 300 per cent throughout the territory east of Toyah, all within a year's time. The old shallow wells became totally inadequate and immediately a large number of deep wells were put down. At many points the supplies became exhausted and water had to be hauled from other points, while at still other places treatment had to be suspended because of insufficient water to flush out treating tanks. At Lorain, Tex., where the normal water consumption had been approximately 60,000 gal. a day, five artesian wells were put down, and for a time provided a daily capacity of approximately 500,000 gal. A large part of this water was hauled 23 miles east to Sweetwater and 45 miles west to Big Spring to amplify inadequate supplies at these points.

While the newly drilled deep wells enabled the road to carry on during the peak of the boom, the supplies were undependable, and it became evident that the ultimate solution of the problem in Texas lay in the construction of reservoirs. Recognizing this, a number of reservoirs have been constructed in recent years.

Between Big Spring and Toyah, about 150 miles, natural sites for reservoirs were not to be found, and it became necessary for the road to rely on moderately deep wells since deeper wells produced salt water. Some reservoir sites were found in western Texas, and several reservoirs were built, but in this territory the greatest care had to be exercised not only in the selection of sites, but also in their preparation because of underlying deposits of porous material, principally gypsum and gravel. At the present time, very few shallow-well stations are still in service in the three divisions of Texas.

Many Reservoirs Constructed

The development of reservoirs has been one of the outstanding phases of the water service improvements on this road in recent years. At the present time there are 22 reservoirs on the road, 17 of which have been developed within the last four years. These reservoirs vary in size with the local demand for water, and also with the rainfall at the different points, from the smallest, covering approximately 10 acres with a capacity of 21,000,000 gal., to the largest, covering about 60 acres and having a capacity of about 630,000,000 gal. The latter is at Levinson, Tex., located between the Davis and Guadaloupe mountains. This reservoir, which was enlarged in 1929, is fed from a natural drainage area of approximately 120 square miles, over which the annual rainfall is some 15 to 20 in. The second largest reservoir on the road, with a capacity of 315,000,000 gal., is at Mingus, Tex., while the third largest, with a capacity of 200,000,000 gal., is at Bonham, Tex.

Modern Pumping and Treating Equipment

Along with the extensive changes which have been made in the sources of water supply, the modernization of pumping equipment has received large attention. Whereas practically all pumping was done by steam power or windmills 10 or 15 years ago, 56 of the total of 63 stations requiring pumping equipment are now served, either in whole or in part, by oil-engine or electric motor-driven equipment. Automatic electric plants, controlled by float switches, have been installed wherever possible to reduce plant attendance to a minimum. Deep-well turbine pumps have been added to the water-supply equipment at all stations where practical, and have been found to be readily adaptable to reservoir supplies and automatic stations.

Since the first installation of automatic pumping on the road about five years ago, automatically operated plants have been installed at 25 points. Largely as a result of this and other improvements, the water-service forces on the different divisions have been reduced to a supervisor and three pump repairmen. Under ordinary circumstances, the automatic plants are visited only once a week for inspection, and only about once a month for oiling.

The treatment of objectionable waters has also been given a large amount of attention in recent years. Nine

The Reservoir Pumping Plant at Rodey, Tex., Served by a Deep Well Turbine Pump as Used at Many Other Reservoirs

years ago water treatment was provided at only three points, whereas today some form of treatment is provided at 25 points. The character and extent of the treatment vary with the widely diverging character of the water over the line, the principal forms of treatment including lime, lime-soda ash, coagulants, zeolite, filters and chlorination. The most prevalent treatment on the road is the lime or lime-soda ash method, 18 plants employing this process. At many of these plants sodium aluminate is added as a coagulant, and plans are now under way for the provision of 10 new wayside plants for treating with this material. With the completion of these plants, practically the entire main line of the road will be freed of objectionable boiler waters.

Along with the improvements already mentioned, storage tanks have also received attention. Whereas the older tanks were largely of wood or corrugated iron, and relatively small, seldom exceeding 50,000 gal. capacity, recent years have seen these old tanks replaced largely by tower-type hemispherical or conical-bottom tanks, ranging in capacity from 50,000 gal. to 300,000 gal., but mostly of either 100,000 gal. or 150,000 gal. capacity. At the present time there are 50 steel tanks on the road, 37 of which have been erected in the last 3½ years.

Extensive Improvements Made at Terminals

While the improvements described have been quite general over the entire road, major attention has been given to the building up of the water facilities at terminal points. Some of the most interesting of the recent im-

provements made at terminals have been at Toyah, Tex., which lies in an arid region surrounded on three sides by mountain ridges about 30 miles distant. For many years water has been the greatest problem at this point. Wells sunk in and around the town, and for many miles around, were of short life and produced hard water; artesian water obtainable at a depth of 750 ft. can not be used because of its high sulphate content; and a reservoir, built a number of years ago, was of little value because evaporation and seepage were often more rapid than the flow into it.

The final solution of the problem at Toyah was found in a spring, about 37 miles distant in the Davis mountains, a spring which had a tested output of from 700,000 gal. to 1,500,000 gal. a day, with an average daily output of about 1,000,000 gal. Fortunately, the water from the spring is soft and uncontaminated.

Determined to end its water troubles at Toyah, $650,000 was appropriated to purchase, store and pipe the water to the town. The pipe line provided between the spring and the town has a measured length of 37½ miles and a fall of 1,065 ft., and was laid throughout with its grade line below the hydraulic gradient. Using a maximum flow of 1,000,000 gal. a day as a basis of computation, the line was constructed of 8-in., 10-in. and 12-in. centrifugally-cast iron pipe. Two surge tanks, with pressure-relief valves located just ahead of them, were introduced into the line to relieve excess pressures, automatic air valves were provided at all summits, and gate valves were located at strategic points for use in case of a break in the line.

Near Toyah a conical bottom settling tank of 190,000 gal. capacity was provided, into which a coagulant is introduced when rainfall makes the water turbid. The settling period in the tank is eight hours, which gives a daily capacity greater than 500,000 gal., or more than the present maximum consumption. If the demand at Toyah should increase, it is merely a matter of erecting another settling tank.

From this tank, the water flows to Toyah where the line is divided into two smaller lines, one extending to a 100,000-gal. elevated steel storage tank from which the water columns are supplied, and the other carrying the water through rapid sand filters, thence through chlorination, and then into an elevated tank from which potable-water mains carry it to company buildings in the town.

Just below the settling tank outside of the town, a 500,000-gal. storage tank is tied into the line to provide an emergency supply in the event of a break in the pipe line or line equipment. When the tanks directly at Toyah are filled, the water automatically flows into this larger tank.

In order to equalize the seasonal flow of the spring, a dam has been constructed in the hills just below it, which impounds approximately 85,000,000 gal. of water. The dam, which is 350 ft. long and 40 ft. high at midstream, is of earth construction with a 12-ft clay core, and is secured to the natural rock valley by means of a concrete key longitudinally throughout its center line. A spillway, 100 ft. wide, is cut from solid rock at the west end of the dam, and concrete beams carry all pipes through the base of the dam in order to avoid any possibility of settlement at the pipe joints.

Supply Improved at Ft. Worth

At Ft. Worth, Tex., where a large quantity of water has been required, both at Ft. Worth proper and in Lancaster yard, the supply has always been adequate, but the raw water which is taken from the Clear fork of the Trinity river, has a hardness varying from 5 to 20 grains, making it unsatisfactory. To overcome this condition, a lime-soda ash treating plant was provided at the Clear Fork pumping station, together with an effective settling basin, which now lowers the hardness of the water to 0.9 grain.

The settling basin is of concrete construction, 100 ft. long by 100 ft. wide by 15 ft. deep, and is divided into four equal parts, each of which is further divided into four equal parts by baffle walls. The river water is first pumped into an open concrete race where the lime and soda ash are thoroughly mixed with it, and then passes into the settling basin where it is retained for a period of 16 hours. From the settling basin it passes to a rapid sand filter, which, like the basin, has a capacity of 1,200 gal. per min.

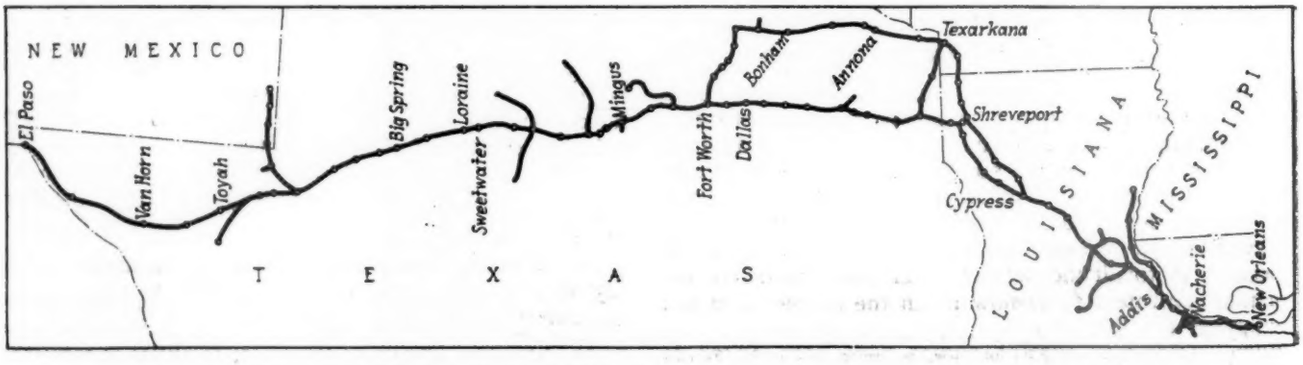
The water is raised from Clear fork by an electric turbine pump, and, after passing through the treating plant, is elevated into two 300,000-gal. service tanks, one in Lancaster yard and the other in up-town Ft. Worth, by a centrifugal pump driven by a 75-hp. semi-Diesel engine.

Other Typical Improvements

Typical of the consolidation of water supplies to secure either a better quality of water or reduced pumping costs, or both, is the case at Vacherie, La., about 45 miles from New Orleans, where entirely new water facilities were provided to replace two other water stations, Edgard and St. James, where unsatisfactory water was being secured from shallow wells. With well water salty and surface supplies mostly acid throughout all of this general territory, the new supply at Vacherie is secured from the Mississippi river, about a mile from the tracks.

In the layout provided, a circular concrete pump house was constructed on the batture of the river levee, and was so designed that the inside bottom floor was only 10 ft. above low water level. A triplex pump

(Continued on page 612)



Map of the Texas & Pacific—Small Circles Show the Locations of Water-Supply Stations on the System

Canada's Weal Not Fostered by

ST. LAWRENCE WATERWAY PLAN*

By W. T. Jackman
Professor of Transportation,
University of Toronto

Cost estimates are too conservative—Use by ocean ships not economical—No benefit to farmer—Grain trade shifting to Pacific ports—Should collect tolls to defray all costs

NOTWITHSTANDING the attention which has been focused upon the St. Lawrence navigation and power project, there is conclusive evidence that the majority of the people apart from those associated with transportation interests know very little about it. They have been content to have their opinions formed for them by the daily press; and in not a few cases the latter refuse to publish anything which does not coincide with the editorial bias. We should analyze this problem in the light of reason and of reality, in order that we may be able to reach conclusions which are based upon a sound foundation. If a project of this kind is to stand the test, it must rest clearly and definitely upon an economic basis.

Misleading Estimates of Cost

We must have a clear view as to the cost of the proposed improvement. Much has been given to the public which is entirely misleading. For example, the chairman of the United States St. Lawrence Commission, Mr. Hoover, who was then Secretary of Commerce, reported in 1926 that "the total investment in the St. Lawrence by the joint governments on the above basis of procedure would be from $123,000,000 to $198,000,000, depending upon details of the plan."

To show the cost as given by the Joint Board of Engineers, we take the following figures from their report:

To provide a channel 27 feet deep from the head of the Lakes to Montreal, including installation of 1,365,000 horse power of electrical energy on the St. Lawrence and the cost of the Welland Ship Canal, would involve these expenditures:

On Great Lakes—	
Connecting channels	$54,900,000
St. Mary's River locks	6,500,000
Compensating works	3,700,000
Welland Ship Canal	115,600,000
St. Lawrence River to Montreal	355,900,000
Total	$536,600,000

But the Joint Board of Engineers did not give the *entire* cost of all the factors which must be taken into account in determining how much the people must pay for the project. For, in addition to the cost of construction as given here, we must add the interest at, say, 5 per cent during the period of construction, which is estimated at ten years. Adding the interest on $536,600,000 at 5 per cent for one-half of 10 years, we get $536,600,000+$134,150,000, or a total of $670,750,000. Of this amount Canada's half would be $335,000,000.

But this deep waterway would require the deepening of the important harbors along the Lake route if the deep-draught vessels were to be able to operate in the Lakes. To the previous cost we should, therefore, have to add the cost of deepening, and in some cases enlarging, the harbors of Kingston, Toronto, Hamilton, Port Colborne, Windsor, Sarnia, Sault Ste. Marie, Port Arthur and Fort William. In the case of some of the harbors on the north shore, this work would have to be done in part through solid rock. There is no basis upon which we could reach a satisfactory estimate as to the expenditure for this purpose, but it would certainly add many tens of millions of dollars to the cost of the water route. We know that the original estimate of $25,000,000 for the improvement of Toronto harbor, in anticipation of the opening of the Welland Ship Canal, has been far exceeded by the actual expenditure. In addition to the capital cost of these works, there would also have to be included interest on that capital for the period of their development.

Such Projects Always Cost More Than Estimates

Two experienced and highly talented engineers of Montreal, Messrs. Holgate and Jamieson, at the request of the Montreal Board of Trade made a careful and intensive study of this proposed waterway improvement; and, in their report in 1929, referring to the estimates of cost of the Joint Board of Engineers, they said: "We desire to say in regard to these estimates, that they are not contractors' estimates, and we venture the opinion that the allowance for contingencies has not been liberal enough. The river is one of the largest in the world, and the quantities of water to be handled are unprecedented; the construction must be spread over several years, and the works during progress will be subjected to such trying conditions from water and ice, and on such a large scale as we have no precedent to guide in making estimates of the cost of such enormous sub-aqueous works as are demanded, so that although no doubt The Joint Board of Engineers gave this phase consideration, yet we are convinced that the costs of the work will be substantially in excess of the figures given in the report, and we do not think anyone can say what greater sum will be required, as there is no accurate information to safely guide in making such an estimate."

In addition to the cost connected with the actual

* An abstract, greatly abridged, of a comprehensive analysis of this project from a Canadian point of view, presented before the Toronto Railway Club on March 7.

construction of the works essential to the navigation and power, there will be other expenditures which will be incurred. Dykes will have to be provided at various points on both sides of the international section of the river. The International Joint Commission estimated that 4,780 acres would be flooded on the Canadian side, and 6,320 acres on the New York side. The flooding on the Canadian side presents the most serious problem, as it involves the protection or entire removal of certain towns, and the inundation of several villages, a considerable area of cultivated land and a number of burial grounds which have been in existence for about a century. There would also be the cost of eliminating the existing canals on the Canadian side, the cost of purchasing the charter rights and privileges of any company operating along the international section, and the payment of damages to any other private interests which would be injured by the proposed changes in the river. [Professor Jackman here quoted figures on various canal projects showing in every case that the actual costs exceeded the estimates by more than 100 per cent.]

If the estimates of these works, which are relatively simple, fell so far below the actual costs, what shall we say regarding the St. Lawrence project, which is much more difficult because containing so many factors of an unknown character? In view of the fact that actual costs of such works almost invariably reach twice or three times the estimated costs under the most favorable conditions, we leave it to the enlightened mind to calculate the full extent of the actual obligation which would have to be added to the burdens now borne by the 10,000,000 people of this country.

Would Ocean Shipping Invade the Lakes?

The first argument in favor of this waterway development is that it would be of great benefit to the interior of the continent by making the lake ports into ocean ports.

The first conclusion of the United States Commission on the St. Lawrence improvement was that "the construction of the shipway from the Great Lakes to the sea is imperative both for the relief and for the future development of a vast area in the interior of the continent." It has been openly proclaimed that a 27-foot waterway, permitting the operation of vessels of 25-foot draught, would admit 88 per cent of all ships now entering United States ports.

There may be a physical possibility of vessels of 25-foot draught coming through the proposed deeper waterway, but there are conditions which militate against this. In the first place, it would be difficult for the long vessels of the ocean type with small rudder to navigate through the restricted and tortuous channels of the upper St. Lawrence, where sharp turns are abundant. The difficulty and danger would be much greater if vessels had to meet and pass one another in these narrow passages, and it would be still further increased if fog obscured the visibility. In this case the vessel would have to anchor; but to anchor a vessel of even moderate size would be virtually impossible in some of the long, narrow sections of the upper part of the river. The ship must swing in anchoring and in swinging it is very likely to strike the rocks. Moreover, there would be great difficulty in trying to manoeuvre liners into and out of locks.

But, if the canalized waterway were physically possible, it would be uneconomical. In order to have ocean liners operated through the St. Lawrence route above Montreal, each vessel would have to have the services of a pilot and crew who were familiar with this inland course; and to retain the services of an ocean and also of an inland crew, and as well to bear the expense of the slower movement and the higher insurance rate accompanying the more restricted and dangerous channel, would make the cost of operation materially higher.

In order to be able to operate economically, these ocean vessels would have to have traffic inbound from Montreal, as well as traffic outbound from the Head of the Lakes. But most of the traffic inbound from Montreal is package freight, destined to different interests in the interior. To expect ocean vessels to take this traffic and call at a series of ports along the Lake route would be to cause such delays to these vessels as would increase their operating costs substantially, and this could only be made up by charging higher rates on the traffic outbound.

The only ocean vessels which could or would use this waterway are tramp vessels, which carry bulk cargoes. Numbers of tramp steamers come to Montreal in ballast to get cargoes of grain. They would be still worse off if they were going over 1,200 miles inland to Fort William to get their cargoes, and they could not be subject to the much longer journey, the greater barriers and the heavier operating expenses without being able to charge much higher rates from Lakehead than from Montreal. It is only the smaller tramp vessels which could operate on this route and avoid the present transfer of cargoes; but the smaller tramps are not those which can be operated most economically.

Fantastic Claims of Benefit to Farmers

The second argument in favor of this waterway is that it would reduce the cost of transporting grain from the interior of these two countries to the foreign markets, and that this reducion would be added to the price received by the farmers for their grain. As typical of this argument, we note the words of Mr. Hoover, the chairman of the United States St. Lawrence Commission, in his report to the President in 1926. He says:

"With the completion of such a shipway as the St. Lawrence, the freight rates on grain to world markets would be substantially reduced and as a consequence the price levels of all grains in the Lakes transportation area would be increased accordingly. Much the same type of economic reaction would affect other commodities and industries. It has been estimated that the values in a single year to the farmers alone would equal the capital cost of the waterway."

Whatever his other qualifications may be, Mr. Hoover's insight into economic matters, judged by the foregoing, is sadly defective, as we shall show; and similar misleading and exaggerated statements have been made by many others.

The United States Department of Commerce had an investigation made in 1926 by two of its officials who estimated that via this ocean ship route the cost of transportation of wheat to the seaboard would be reduced by 4.7 cents to 9.6 cents per bushel below the all-water rates that were then in force. On the basis of their estimates, they stated that grain could probably move from the Lakehead to Liverpool for 9 or 10 cents per bushel. A similar statement, that the transportation cost would be reduced by 8 to 10 cents per bushel, in the case of grain, has been repeated endlessly. It was made first in a partisan study by MacElwee and Ritter in 1921, on behalf of the Great Lakes-St. Lawrence Tidewater Association, and it is surprising that the International Joint Commission, in its report of

1921, referred so frequently and favorably to this work. One of the authors, however, in a later and more substantial study, changed his mind and said "that we are justified in believing that the farm prices would be benefited to an average minimum of 5 cents per bushel" throughout the entire area tributary to the Great Lakes.

To show how impossible a saving of 8 to 10 cents per bushel would be, we have only to recall that the rates on wheat from Montreal to Liverpool and Glasgow vary from 4½ to 8 cents per bushel, and that the rates from the Head of the Lakes to Montreal have averaged in recent years from 7½ to 8½ cents per bushel. If, therefore, the proposed St. Lawrence waterway were to effect a saving of 8 to 10 cents per bushel, it would mean that the grain would be carried all the way from Fort William to Montreal for nothing. Even a saving of 5 cents per bushel is beyond the mark, for in the summer of 1931 we have seen wheat carried from Montreal to Liverpool for a normal rate of 4 cents per bushel.

At the hearings before a special committee of the Canadian Senate, in 1928, the Deputy Minister of Railways and Canals, following a protracted inquiry, stated that, when the waterway is improved so that the large upper-lake vessels can come down to Montreal, he thought it might be possible to effect a reduction in the cost of transportation of grain of 3 cents per bushel from Port Colborne to Montreal, as measured by the rates now charged by the canal-sized boats on that route. But he was careful to state that "nobody can forecast what the rates are likely to be in the future," and that the saving he had mentioned did not take into account the cost of construction of the waterway nor the interest on that cost.

Saving of Three Cents Per Bushel Doubtful

We hesitate to accept this view that there might possibly be a saving of 3 cents per bushel as a result of the large upper-lake vessels going down to Montreal. When the rush season is on in the fall these vessels could not afford to spend their time going to and from Montreal through the restricted channels and canalized section of the river unless compensated by higher rates than those charged by the present cheap lower-laker of canaler. It would take longer to go from Port Colborne to Montreal and return than to go from Fort William to Port Colborne and return and unless the rate in the former case were at least equal to that in the latter there would be every inducement for the vessels to unload at Port Colborne and not go to Montreal.

But, assuming that there would be a saving of 3 cents per bushel on wheat by the deeper waterway, would this benefit the western farmers whose grain provides 85 per cent to 90 per cent of the traffic on the St. Lawrence route? We say without hesitation, no. The price of export wheat—and therefore of domestic wheat—is made in Liverpool, the center of the import demand. If, as a result of the canalization of the St. Lawrence, Canadian wheat could be landed in Liverpool at a lower cost of transportation, the Liverpool buyer would not go on paying his former price, but would bid a price which would be as much lower as the reduced transportation cost would warrant. Here, at the seat of the price-making forces, all or nearly all of the reduction in transportation cost would go to the Liverpool importer in the form of the lower price of wheat.

But even if the proposed waterway were constructed and it should make possible a saving of 3 cents per bushel in the carriage of wheat to Liverpool, if the British importer did not get the full benefit of the 3 cents in his price, there are other interests between the farmer and the importer who would be interested in getting a share of the saving. There are the ocean carriers, the inland carriers, the grain brokers, and many others who are essential intermediaries in the grain trade; and it would be inevitable that, if there were anything left after the importer had taken all he could get by his reduced price, the remainder would go to those who are organized most strongly as strategic factors in the trade. It is not difficult to see, therefore, that none of the saving in transportation cost would ever get back to the residual claimants, the unorganized farmers.

Would Grain Be Diverted from U. S. Ports?

The third argument in favor of the St. Lawrence Project is that it would keep the Canadian grain trade moving through Canadian channels and would divert to Canadian channels the large amount of Canadian grain which has been going through the United States channels into export markets.

Of all the Canadian grain exported through Atlantic seaboard ports, 1926-29, on the average of 66 per cent went out via United States ports and 34 per cent via Canadian ports. It is argued that the improvement of the St. Lawrence would draw a very large proportion of that 66 per cent now going out through United States channels back to the all-Canadian channel, and enable it to go out to foreign markets at a lower cost for transportation when it goes by the all-water route to the port. It may be of interest to note some of the important forces which are at work drawing the Canadian grain through New York, notwithstanding equal or slightly lower rates via Canadian channels:

1. New York, being the key port for the North Atlantic service, has such abundant facilities for shipping that vessel accommodation can be had there at all times for shipments to any of the important ports or countries of destination.

2. New York is a liner port, and the liners are always desirous of obtaining grain as ballast, rather than having to take water. The grain will pay something for carriage while the water could pay nothing. But since shippers prefer to send their grain in ship-load lots, rather than in smaller amounts, the liners must bid the lowest rates for the amount of grain they need to help make up their ballast requirements after stowing a satisfactory amount of good-paying cargo. These liner rates are normally much lower than tramp vessel rates, and grain is ever seeking the lowest rates obtainable.

3. The insurance rates via the St. Lawrence route are higher than those from New York because of the greater risks of navigation ostensibly.

4. The port of New York is open all the year and regularity of service is maintained. Business becomes accustomed to such regularity and tends to flow in that direction. On the contrary, the port of Montreal is open only seven months of the year, so that business which uses this outlet during that time must be diverted to another channel for the remainder of the year. Such a break in the trade connections does not conduce to the upbuilding of established relations and development of traffic.

5. Finally, we may note the abundant facilities of five railway systems between Buffalo and New York, namely, the New York Central, the Erie, the Pennsylvania, the Lehigh Valley and the Lackawanna. These make possible the fastest conveyance of freight and assure traffic of appropriate connections with outgoing steamers without inconvenience or delay.

With these strong forces drawing the grain through the United States via New York into the international markets, it is practically certain that, if the rates by the proposed waterway were lowered, the railways from Buffalo would meet the water rates at every change. It is inconceivable that the United States railways would stand by helpless and see the enormous volume of this

traffic diverted from them. And if the United States roads reduced their rates on this wheat, the Canadian railways would have to follow suit; and the outcome would be that, while the western farmers received a lower price for their wheat, the rail carriers would also find their revenues from the traffic depleted. The fact is that lack of traffic is the greatest impediment in the way of the Canadian railways. If there is one thing which stands out so clearly as to be an ever-present reality it is that we have been prodigal in our over-investment in railways; and this fact should teach us wisdom that we should not over-invest also in waterway transportation.

Even if it were true that the United States railroads were "taxed to capacity" [as waterway advocates have assumed in their arguments] how could the proposed waterway be of real assistance when it would not furnish transportation during the period of the year when railroads are called upon to carry the peak load of traffic? The railroads of that country have always been able to meet the fullest requirements of the traffic during the summer. It is during the late fall and winter months that the peak load occurs and this is just the time when the St. Lawrence route is closed.

Grain Trade Shifting to Pacific Ports

In the last seven years for which we have the statistics, i.e., 1923-29, the spring wheat production in Manitoba was 272,746,000 bushels, for Saskatchewan, 1,587,938,000 bushels, and for Alberta, 839,760,000 bushels; in other words, Alberta produced 3 times as much as Manitoba, and Saskatchewan about 6 times as much. With these changes in production it would be natural that the Pacific ports should attract a larger and larger share of the wheat export trade. Since the St. Lawrence is predominantly a grain route—the movement of grain constituting 85 per cent of its traffic—and since the western grain is being shipped in proportionally greater volume through the Pacific ports, any large expenditure upon the St. Lawrence waterway could scarcely be justified on economic grounds.

A fifth argument for the St. Lawrence development is that as a trade route it would duplicate the results of the Suez, Panama and Manchester canals.

We need only mention here that these canals are open throughout the entire year, while the St. Lawrence is open only seven months of the year. In the matter of traffic possibilities, therefore, there is no reasonable comparison.

If Canal Is Built, Tolls Should Be Levied

The pertinent question will be asked: Why should Canada pay most of the cost of providing a free waterway in the St. Lawrence for ships of all nations which may be able to use it? The United States charges Canadian as well as all other vessels the tolls for passing through the Panama Canal, and we can see no justification for Canada's embarking upon a great construction project of this kind so as to provide a free waterway for United States or other interests. We consider that the recent action of the Hamilton Chamber of Commerce is very much to the point when it came forward with a resolution saying that inasmuch as the expense of deepening this waterway could not be justified by any prospective savings or advantages to Canadian traffic, "a system of tolls should be established through the operation of which the cost of interest, depreciation and operation would fall, not upon the Canadian taxpayer, but upon all shipping using these waterways, as in the case of the Panama Canal."

Finally, the deeper waterway is advocated because water transportation is cheaper than railway transportation, and therefore stimulates business all along the line.

Waterway Rates, Not Total Costs, Are Lower Than Railways

We fully agree with this when it applies to operation on the ocean or on the broad lakes—routes which are provided by nature—but the case becomes entirely different when we are considering routes which have been made and kept navigable by governmental expenditure. Even those who advocate the cheapness of water transportation do so upon condition that the cost of construction be left out of consideration. In other words, if we omit the largest item of the cost of water carriage, the rate is cheaper than the rail rate.

In the hearings before the committee of the Canadian Senate in 1928, James Playfair, one of the oldest, most competent and thoroughly informed shipping men on the lakes, said: "You give me the interest on your deep waterway canal and I will move all the grain from Fort William for nothing." And, it must be acknowledged, this would be a good bargain for him. In answer to a previous statement made by the Premier of Manitoba to the farmers that this waterway would lower their transportation rates 7 cents per bushel, Mr. Playfair had written him that he would take a contract to move all the grain for 7 cents per bushel from the lakehead to Montreal.

Oil-Electric Car in Mixed Train Service

By R. J. O'Brien*

AS a step to reduce the costs of local service, the Great Northern in November, 1930, put in service its first oil-electric rail car, a 400-horsepower, single-power-plant car purchased from the Westinghouse Electric & Manufacturing Co. For the first six months the car operated in mixed service, with three or four trailers, on a one-way run each week day, as follows:

	Miles
Between Breckenridge, Minn. and Fargo, N. D.	46
Between Fargo and Bedford, N. D., via Casselton	56
Between Bedford and Devils Lake, N. D.	102
Between Devils Lake and Brandon, Man.	147
Total miles per day	351

In May, 1931, a further consolidation of local service was carried out, and since then the car no longer runs between Fargo and Breckenridge. It terminates at one end at Fargo but between Fargo and Bedford is towed without a crew in another mixed train. Its present operation is one trip per week day, either way, over the following route.

	Miles	Trailers*	
		Freight	Passenger
Fargo, N. D. and Bedford, N. D.	56	Towed without crew by steam mixed train	
Bedford and Devils Lake, N. D.	102	2 box	1 coach 1 bag.
Devils Lake and St. Johns, N. D.	74	2 box	1 coach
St. Johns and Brandon, Man.	73	None	1 coach
Total train miles per day in a train	305		
Total miles under its own power	249		

* An extra car is hauled at times.

This train takes care of the service formerly handled by the passenger trains and the way-freight trains on

* Special Representative, Westinghouse Electric & Manufacturing Company.

these branches. There is practically no station switching required except at Devils Lake, where the car remains for 1 hr. 16 min. in one direction and 2 hrs. 5 min. in the other direction, and the other station-stop times are usually as required to load and unload freight from the cars. Local freight car-load shipments on these branches are taken care of by bi-weekly or tri-weekly steam-locomotive train service. This allows the mixed train to maintain practically the old passenger train schedule.

The oil-electric car is particularly well suited for such mixed service because of its economy of operation, and its capacity to haul the four trailers and approximate the established steam passenger-train running time between stations.

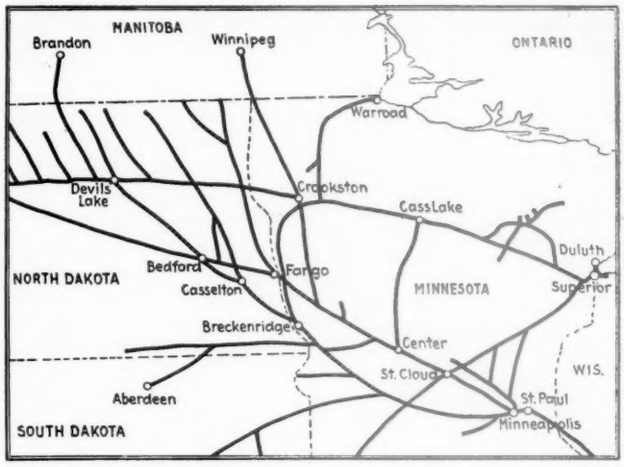
The car has demonstrated the reliability and serviceability of oil-electric cars, and has shown an attractive return on the investment through saving in operating expenses. This is indicated by the following operating data recorded since operation started in November, 1930, to November, 1931, inclusive:

	Cents per train mile
Fuel	2.2
Lubricants for rail car	1.3
Repairs to rail car	2.0
Supplies, enginehouse expense	
Engineman	9.0
Total of operating items for rail car (excl. of trailers and trainmen)	14.5

This compares with a cost for 1930 of 21.63 cents per train mile for all rail cars on the Great Northern system, or to 21.6 cents per train mile for the gas-electric car running opposite to the oil-electric car. In this period the car has operated 86,000 train miles.

The rail car is arranged with a baggage and a mail compartment which, with a baggage-car trailer, takes care of all baggage, mail and express. The single coach is adequate to care for the passengers and the two freight cars handle all the local freight. There is a train crew of three men including baggageman, conductor, and one brakeman.

By towing the car into and out of Fargo no transfer of passengers, mail, baggage or express is required. and the car is maintained at the Fargo roundhouse by the regular roundhouse night and Sunday day forces. All fueling and lubricating oil changes are made at this roundhouse, the fueling after each round trip, and the



Map Showing the District in Which the Train Is Operated

lubricating-oil change at intervals of approximately 4,400 miles with plans for longer intervals in the future.

A centrifugal lubricating oil purifier on the car makes this possible. Lubricating oil is not reclaimed and is charged against the oil car operation as though crankcase drainage is wasted. Actually, however the drainage is used to lubricate steam locomotives. Lubricating oil for the 34 gas-electric cars on the Great Northern is changed at an average of 2,000 miles to 2,500 miles.

The car is operating with a sustained output of 300 kw. or about 10 per cent above its rating, and there is obtained 1.7 miles per gallon of fuel oil with this normally four- or five-car train.

As indicated above, the reliability of the equipment has been quite satisfactory. During the period November, 1930, to November, 1931, inclusive, the car was operated 86,000 miles under its own power, and was scheduled to operate under its own power 93,000 miles; the serviceability thus was 92.5 per cent. Out of service time chargeable to the oil engine was a small percentage. The maximum period out of service was at the time of an electrical failure when a defective axle and journal were discovered on the trailer truck, requiring the wheels and axles be sent to the shop at St. Paul, Minn.

Great Northern Rail Car Which Is Used Regularly for Hauling Four Trailers—The Oil-Electric Plant Is Rated at 400 Hosepower and Is Required to Exceed This Rating for Extended Periods

Railroad Loans

WASHINGTON, D. C.

ONE of the next questions on which railroads and others interested are looking to the Interstate Commerce Commission and the Reconstruction Finance Corporation for an answer in connection with their policies in making loans to railroads concerns the method to be adopted in meeting bond maturities. While the furore over bank loans is still raging and railroads that have not yet received a definite answer from the government are negotiating with their bankers to ascertain how many of the loans can be extended without government aid, many frantic queries are being received here as to the extent to which the government loaning agency will be disposed to provide the cash to pay off maturing bonds.

While it is understood to be the policy of both the commission and the Finance Corporation to prevent any actual receiverships and the policy of the corporation, at least, to try to remove such uncertainties as that which in the Missouri Pacific case it said was "detrimental to the general credit situation of the railroads," they have not found themselves able to work fast enough to give full assurance to those who are worrying about specific situations. As a result some of the utterances of the commission in its reports in which it has deferred consideration of applications to meet maturities a few weeks off, accompanied by rumors of efforts to have the present holders carry part of the load, and Senator Couzens' bill to take the matter of railroad loans out of the hands of the corporation, have caused breaks in the market prices for bonds, whereas one of the purposes of the creation of the corporation was to have an effect in the other direction.

The commission on April 1 announced its approval of $7,000,000 of the $55,000,000 asked by the Baltimore & Ohio, but deferred consideration of $9,000,000 of bank loans and the other amounts asked pending further negotiations.

One example on which attention has been focused this week is that of the $20,727,750 of first consolidated mortgage 4 per cent bonds of the St. Louis Southwestern which mature on June 1. The company on January 25 applied for a loan of $31,727,750, including the amount of the bonds, $9,000,000 to retire bank loans due April 1, and $2,000,000 to meet possible deficiencies for which funds were not yet available from the Railroad Credit Corporation. At the same time the company applied to the commission for authority to issue $39,599,750 of general and refunding mortgage bonds for use as collateral or for refunding, and the issue was later authorized by the commission. On April 1 half the bank loans were extended by the Chase National Bank and the Mississippi Valley Trust Company, which indicates that the corporation intends to provide the other half. Daniel Upthegrove, president, and F. C. Nicodemus, Jr., general counsel of the St. Louis Southwestern, have been in Washington recently in conference with the commission and the corporation, and it has been rumored that negotiations have been under way for taking care of the bonds partly in cash and partly in the new bonds.

At one time there was a theory that the assurance that the government would provide funds which could not be raised elsewhere would to a considerable extent make it unnecessary to resort to the government, but since the applications for loans have been coming in so fast that the commission has been able to give consideration only to the requirements of the immediate future, apparently the only assurance available is that afforded by the fact that no railroad has so far this year been forced to default.

Senator Couzens, chairman of the Senate committee on interstate commerce, who has criticized the policy of the Reconstruction Finance Corporation in authorizing a loan to the Missouri Pacific to pay off half its short-term bank loans in New York, on April 1 introduced in the Senate a bill to repeal for the future those parts of the Reconstruction Finance Corporation Act which authorize it to make loans to aid in the financing of railroads and proposing the creation of a revolving fund of $400,000,000 to be administered by the Interstate Commerce Commission and the Secretary of the Treasury. The bill provides for loans from this fund only to meet maturing bonds, debentures, and equipment indebtedness, and omits the provisions for loans to receivers and railroads under construction in the present law while it would prohibit loans to meet bank loans, taxes, and various forms of current indebtedness such as have been made in several instances by the Finance Corporation. The bill provides for loans to be made at 6 per cent interest, which is the rate which has been charged by the Finance Corporation, to be made by the Secretary of the Treasury on certification from the commission. Passage of the bill is regarded as extremely unlikely because Senator Couzens had attempted to bring about the passage of such a separate provision for railroad loans at the time the corporation act was under consideration and he was largely instrumental in having provision inserted in that act requiring commission approval.

Loans either actually made or authorized by the Railroad Credit Corporation as of March 31, to railroads to meet their fixed interest obligations totaled $16,901,572, according to the first monthly report of that corporation filed on April 4 with the Interstate Commerce Commission. Of that amount, loans so far made totaled $2,363,120, while loans already authorized amount to $14,538,452.

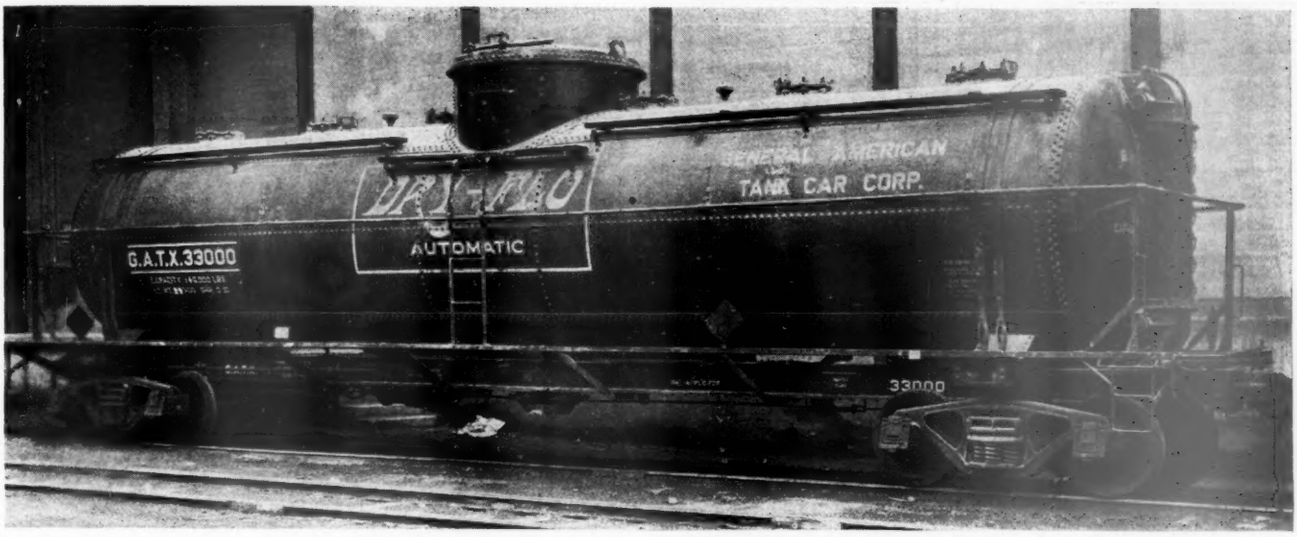
Collection of Increased Revenues

Collection of rate increases under Ex Parte 103, according to the report, totaled $4,068,773.13, substantially all of which represents the amount realized from the increased revenue in January, 1932. The rates became effective on January 4.

By the terms of the plan under which the fund is administered, the railroads have forty days after the end of each month in which to file with the corporation the amount received from rate increases during that month and then are allowed ten days in which to turn the funds so derived over to the corporation.

Reports thus far filed for February indicate that the rate increases for that month will amount to over $5,000,000.

The Reconstruction Finance Corporation has furnished to Congress a report as of March 31 showing that it had made loans to that date totaling $238,000,000, of which $60,787,757 had been loaned to 16 railroads including $7,335,800 to receivers of two railroads. Also $1,147,952 had been repaid, although no names were given. Presumably this includes some of the money loaned by the Railroad Credit Corporation which had just become available, as the government corporation had loaned approximately $17,000,000 in the form of advances against orders given by the credit corporation.



Newly Developed Tank Car for the Shipment of Dry Commodities

General American Develops Tank Car for Dry Commodities

Car with automatic, mechanical-unloading feature promises to revolutionize shipping methods for bulk granular materials

A TANK car, known as "Dry-Flo," which handles dry granular commodities with practically the same convenience and efficiency that standard tank cars now handle liquids, has recently been perfected after nearly two years of research and road tests by the General American Tank Car Corporation. Designed for the bulk movement of such dry materials as cement, lime, silica sands, sulphur, fertilizers, soda ash, pottery clays, Fuller's earth, etc., this car offers the combined advantages of moisture-proof shipment; automatic dustless loading and unloading; simplified collecting and conveying equipment at plants; elimination of packaging expense; and the saving of at least two manual handling operations. In view of the unique characteristics and great potential economies of this new type of car, the indications are that it will be widely used and revolutionize present handling methods for a number of important dry commodities. It promises to effect large savings for shippers and bring back to the rails many bulk movements of material now handled in package shipments over the highways.

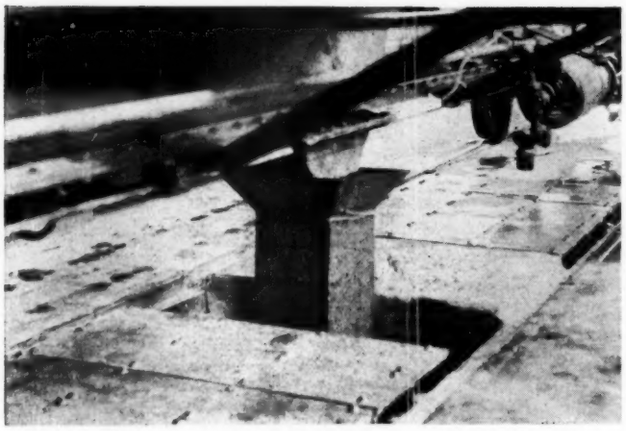
Various Uses of the "Dry-Flo" Tank Car

Before describing the new tank car, a few illustrations of its use may be of interest. Cement, for example, is now shipped in increasing amounts in bulk in paper-lined box cars. The most efficient means of unloading is with a drag shovel, and it is said to take one man about 2½ hours to unload a car, whereas the Dry-Flo car can be loaded with 65 tons of cement in 30 minutes, and unloaded in less than two hours without manual labor, using much smaller conveying equipment, at the same time eliminating the serious cement dust nuisance which, in addition to loss of the material itself, is irritating and frequently necessitates workmen's greasing their faces and arms as a protection. It is reported that one large contracting company has already decided to use this type of car instead of motor trucks for transporting cement from the cement-producing plants to their mixing plant.

Another shipper, who has been using hydrated lime in a manufacturing process instead of the cheaper and more efficient quick lime, because the latter is dangerous to handle, is planning to substitute the more efficient process, since quick lime can be handled in the new car without coming in contact with human hands. Substantial savings are anticipated as a result of this substitution, as less quick lime is required and its cost is about $1 per ton less than that of hydrated lime.

Another example of savings is afforded in the shipment of poisonous commodities such as arsenic between certain points. The hazard of manual handling is eliminated by the use of the new car; also the cost of barrelling, labor of loading and unloading barrels, and the unavoidable loss of a certain amount of material during these various operations. In a specific case, the substitution of arsenic handling in the new car is expected to save over $200 per carload of 65 tons of arsenic.

The economies of the use of the "Dry-Flo" car are readily apparent. Owing to the reduced labor in handling and the elimination of packaging expense, savings as high as $2 a ton in shipping costs have been reported during the test period. The car is not recommended



Dustless Unloading Is Provided at a Single Small Center Hopper

for the movement of bulk materials not requiring protection from the weather and now carried in gondola and hopper cars which can be unloaded quickly with the proper equipment. The use of the "Dry-Flo" car for handling building sand, for example, cannot be justified, but important savings are said to be shown in the shipping of special silica sands which are relatively high in cost and must be kept dry. In cases where use of the new type of car permits substituting one material in bulk for a less efficient one in packages, savings are estimated to reach as high as $1,000 per month per car.

Owing to the provision of but a single bottom outlet of comparatively small size, with a uniform rate of discharge, the use of this car avoids the necessity of extensive and complicated plant unloading equipment which is ordinarily designed to gather material from a number of outlets and must have adequate conveyor capacity to accommodate sudden heavy loads. Moreover, the use of a single small outlet facilities including in the design a packed-tight slide valve which prevents the loss of expensive or poisonous materials and, with the proper boot connection, permits dustless unloading.

How the New Tank Car Operates

The operation of the "Dry-Flo" tank car is relatively simple. It is loaded, as shown in one of the illustrations, through small manways located at the top of the center line of the tank. The car is unloaded by means of two drag-chain conveyors within the tank which draw the lading from each end toward the center discharge opening. The chains move along the bottom of the tank toward the center, continuing upward and back along the top to the ends where they operate over sprockets arranged for easy inspection when necessary. The driving mechanism is housed in a small center compartment communicating with the dome.

Power is furnished by an electric motor located within the dome, or by means of external power which may be applied to a shaft provided. An interesting gear reduction having a high ratio is used, making it possible to secure a low speed for the conveyor chains. Provision is made for throwing out power on one end of the car, should it be desired to unload at a lower rate of speed, and also for the purpose of starting one end at a time, should the lading be unduly packed or frozen. The only requirements in starting the unloading operation is to open the slide valve at the hopper outlet and plug in a flexible cable connection from the motor to a source of electric power, either 220 or 440 volts.

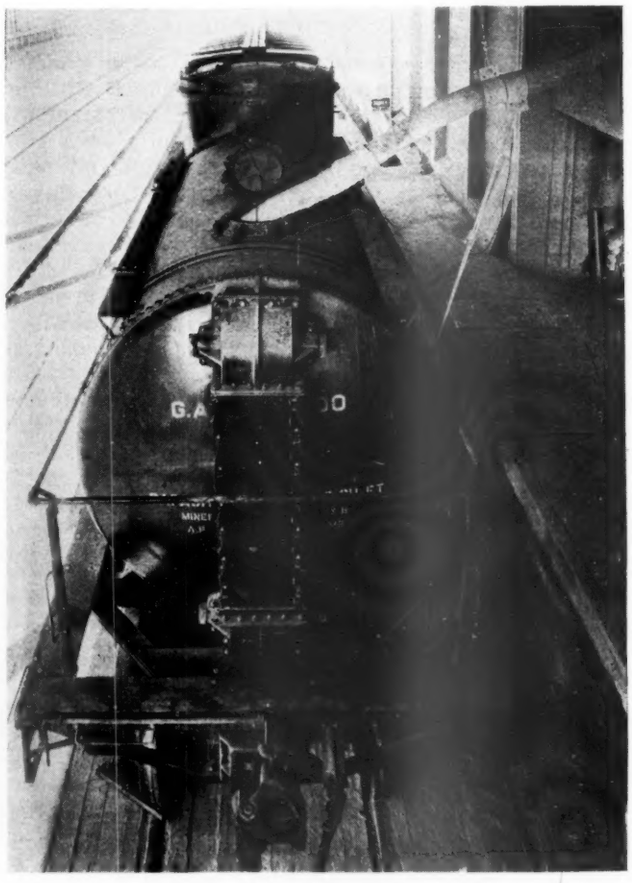
Since dry commodities tend to pack and arch and are of widely-varying weights, the unloading mechanism of the car has been made especially sturdy. Estimates place the life of the unloading mechanism at many times that of the car itself, because of the low speed of operation and the somewhat infrequent use of the equipment, compared with conventional conveying equipment, which often runs 24 hours a day in industrial plants.

The "Dry-Flo" tank car conforms to the general standards of tank-car construction and is designed to meet all American Railway Association requirements. Its net capacity for lading is 1,600 cu. ft.; inside diameter, 96 in.; length over tank shell, 40 ft.; length over striking castings, 47 ft. 2½ in.; height from rail to loading manways, 12 ft. 1 in.; height from rail to dome, 14 ft. 6 in.; height from rail to bottom outlet, 1 ft. 7 in.

The car is equipped with the latest type of GATX standard trucks complete with cast-steel side frames and truck bolsters, Barber lateral-motion device, adjustable roller side bearings and Shaefer brake equipment. The truck capacity is 50 or 70 tons, according to the weight of the commodity to be transported.

The underframe is of the GATX Type-30 standard tank-car construction, complete with Westinghouse air-brake and power-type hand brake. The tank is anchored to the underframe by a double, tank-car type anchor located near the center of the car. The tank is supported at the body bolsters according to the best tank-car practice. The tank is further anchored to the underframe by two tank bands at each bolster.

The tank is of four-plate construction, with a standard tank head at each end. The dome at the center, providing a housing for the motor and other conveying machinery, is equipped with hinged covers to allow



Loading at a Cement Manufacturing Plant

access to the machinery for motor connection and clutch operation. All seams are securely riveted to provide absolutely water- and dust-proof construction.

Six water-tight and dust-proof loading manways are provided at the top of the tank so that it may be loaded to its full capacity without pyramiding of the commodity. Many commodities, such as cement, may be loaded through one manway, only, at each end. The manways, 16 in. in diameter, are equipped with gasketed, bolted and hinged covers.

The unloading hopper, located, as mentioned, at the bottom of the tank at the center of the car, extends downward between the center sills. The hopper opening is 11⅝ in. by 12 in.

Mechanical Unloading Mechanism

Two bulkheads placed in the center of the tank under the dome provide the entirely-enclosed dust-proof compartment for the driving mechanism. Power is transmitted from a 1,200-r.p.m. ball-bearing electric motor to one right-hand and one left-hand special "Heliocentric" speed reducer by a heavy-duty, double-roller chain. The electrical current characteristics are arranged to suit the customer's requirements. A "Twin Disc" friction clutch is placed between the motor and speed reducers to facilitate starting and stopping.

The Heliocentric speed reducers are the entirely closed type, running in oil. The conveying chains are driven by sprockets directly on the speed-reducer shafts. All bearings are Alemite lubricated and are so designed as to be dust-proof and oil-tight.

A heavy, special, endless drag chain, 14 in. wide and operating at the low speed of 10 ft. per min., is provided for each compartment. Slope sheets along the sides of the tank divert the commodity into the path of the chain so that it is conveyed into the discharge hopper. The driving mechanism is arranged to drive one or both chains, thus providing the two-speed discharge rate, referred to.

The car may generally be unloaded in less than two hours, varying slightly according to the commodity. This provides a discharge rate of about 400 cu. ft. per hr., using one chain, or 800 cu. ft. per hr., using both chains. The discharge is arranged to empty the car completely.

The "Dry-Flo" tank car has been developed by the General American Tank Car Corporation in an effort to co-operate with the railroads in supplying the most efficient and economical transportation methods, and to increase the volume of transportation of commodities in bulk over the rails. Among the many types of cars which have been developed by this company, none is considered to be more important than the "Dry-Flo" car and none more far-reaching in its possible effects.

NINE HUNDRED AND SEVEN QUAIL.—This number of birds figured as the chief feature of a press dispatch of March 18 from Holly Springs, Miss., the birds having been consigned by express to some point outside the state, thereby making the carrier liable to a fine; and, says the dispatch, "a fine of $90,700 has been imposed on the Railway Express Agency." The quail were discovered in cages on the railroad platform when being transferred. This (financially) exciting news was, however, somewhat modified by a later dispatch saying that the fine had been reduced to $532.50; and had been paid. The representatives of the carrier put up a first line of defense by demanding a jury trial in the case of each one of the birds, and insisting that each quail be produced in court for identification. On this formidable argument the basis of the fine was changed from $100 to $10 a crate.

Only Four Patrons Killed in Train Accidents in '31

THE year 1931, notable for low records in a great variety of industrial and other statistics, has this week added a remarkable one in the railroad accident column; total passengers killed in the twelve months in train accidents on American railroads, *four;* three less than in 1930 and only 23½ per cent of the average for the four years 1927-30. The tables for five years show:

1931	4	1927	10
1930	7	Five years preceding (Average per year)	77
1929	36		
1928	16		

The total of passengers killed, all causes, in 1931, was 41, which was 18 per cent less than in 1930, but the rate per million locomotive-miles, .03, was the same, the total locomotive-miles for the year having fallen from 1542.6 millions to 1308.8 millions. Passengers injured in train accidents numbered 493; and according to the showing in former years the full report, when issued will probably show that some of the cases terminated fatally.

The principal totals for the year as reported by the Interstate Commerce Commission are shown in Table A, below, together with data for the two years next preceding. As heretofore, the present statement is preliminary and subject to revision.

Table A.—Casualties on Railroads, Three Years

	1931		1930		1929	
	Killed	Injd.	Killed	Injd.	Killed	Injd.
Passengers						
In train accidents	4	493	7	790	36	1,742
Train service accidents	36	1,609	43	1,875	61	2,101
Total train and tr. serv.	40	2,102	50	2,665	97	3,843
Non-train accidents	1	587	0	515	3	528
Grand Total, passengers	41	2,689	50	3,180	100	4,371
Employees						
In train accidents	92	414	129	633	160	1,005
Train service accidents	396	9,019	583	12,900	909	20,965
Total train and tr. serv.	488	9,433	712	13,533	1,069	21,970
Non-train accidents	156	13,521	223	21,792	279	38,120
Grand Total, employees	644	22,954	935	35,325	1,348	60,090
Other Persons						
In train accidents	133	301	160	359	130	537
Train service accidents	4,192	8,221	4,249	9,005	4,836	10,349
Total train and tr. serv.	4,325	8,522	4,409	9,364	4,966	10,886
Non-train accidents	89	1,491	87	1,561	82	1,648
Grand Total, other persons	4,414	10,013	4,496	10,925	5,048	12,534
Total, All Classes of Persons						
In train accidents	229	1,208	296	1,782	326	3,284
Train service accidents	4,624	18,849	4,875	23,780	5,806	33,415
Total train and tr. serv.	4,853	20,057	5,171	25,562	6,132	36,699
Non-train accidents	246	15,599	310	23,868	364	40,296
Grand Total	5,099	35,656	5,481	49,430	6,496	76,995

Every item in the preliminary report is smaller than the corresponding item for 1930, except that covering trespassers. Of these, the total number killed, 2,401, is 4.21 per cent more than in 1930, and the number injured shows an increase of 12.65 per cent.

The total number of persons killed, all classes, in train and train service accidents, averages 3.71 per million locomotive-miles, as compared with 3.35 in 1930; but the number injured averages less than in the earlier year. Total of employees killed in train and train service accidents in 1931, averages 0.37 per million locomotive-miles, as compared with 0.46 in 1930. The total number of employees killed, all classes, all causes, including non-train accidents, averages 0.22 per million man hours, as compared with 0.26 in 1930; injured, 7.83 as compared with 9.70. The man-hours

reported for the year by Class I railroads totaled 2,930.7 millions as compared with 3,641.4 millions in 1930, a decrease of 19½ per cent.

The number of persons killed at grade crossings in 1931 (included in the report under two heads, train accidents and train service accidents) totaled 1,811 as compared with 2,020 in 1930, a decrease of 10.35 per cent; injured 4,657 compared with 5,517; decrease 15.4 per cent. Of the 1,811 persons killed at crossings, 52 are classed as trespassers.

Concentration Hydrometer

WITH a view to affording an accurate determination of locomotive boiler-water concentration and thus preventing excessive blow-downs and attendant unnecessary heat loss, the Dearborn Chemical Company, 310 S. Michigan avenue, Chicago, has recently developed and placed on the market a concentration hydrometer which is notable for compact design and the provision for all observations, temperature corrections and tabular references in a single instrument. Equipment previously employed for determining boiler-water concentration consisted of several units, the use of which required reference to charts and involved several operations which were not practicable to carry on while the locomotive was in motion.

The new Dearborn concentration hydrometer contains an in-built hydrometer, a thermometer and a conversion table, from which the grains of concentration per U. S. gallon are read. In assembling, the float with graduated stem is inserted in the glass tube and a rubber plug and bulb applied. The thermometer and scale are held in place beside the hydrometer.

In operation, boiler-water samples are taken from the water column or from the blow-off connection, in the former case the column being blown down at least twice before collecting the sample. To obtain a strictly representative sample the water should be drawn off through a condenser coil to prevent flashing. The water is permitted to cool to a temperature of 60 to 120 deg. F., then being drawn into the instrument and expelled two or three times to make sure that the glass temperature is the same as the temperature of the water. With the hydrometer floating freely, the float scale is read as soon as it comes to rest. A correction, corresponding to the temperature indicated on the scale of the thermometer, is subtracted from the float reading and the resultant figure referred to the table built into the instrument which gives the corresponding concentration.

In testing samples containing from 600 to 1,100 grains per gallon, the temperature of the water should be 80 to 120 deg. F. in order to float the hydrometer within the limits of the float scale. The concentration range indicated by this hydrometer is from zero to 1,100 grains per U. S. gallon.

Freight Car Loading

REVENUE freight car loading for the week ended March 26 totaled 561,118 cars, a decrease of 23,516 cars below the preceding week and a decline of 177,762 below the corresponding week last year. It was also a reduction of 324,296 cars below the same week in 1930. All districts reported reductions in the total loadings of all commodities in the week of March 26 compared with similar periods in 1931 and 1930. The summary, as compiled by the Car Service Division of the American Railway Association, is as follows:

Revenue Freight Car Loading

Commodities	Week Ended Saturday, March 26, 1932	1931	1930
Grain and Grain Products	27,107	36,915	38,033
Livestock	16,195	19,402	23,576
Coal	117,122	126,231	147,528
Coke	5,221	6,992	10,431
Forest Products	20,307	34,794	55,661
Ore	2,981	6,184	9,254
Merchandise L. C. L.	185,343	222,357	245,265
Miscellaneous Freight	186,842	286,005	355,576
February 27	535,498	681,221	899,498
March 5	559,439	723,215	873,716
March 12	575,481	733,580	881,308
March 19	584,634	741,253	875,385
March 26	561,118	738,880	885,414
Cumulative total, 12 weeks	6,795,872	8,644,258	10,493,519

The freight car surplus for the first two weeks in March was 705,873 cars, a decrease of 15,742 cars as compared with the previous period. This included 360,520 box cars, 270,098 coal cars, 32,073 stock cars, and 14,470 refrigerator cars.

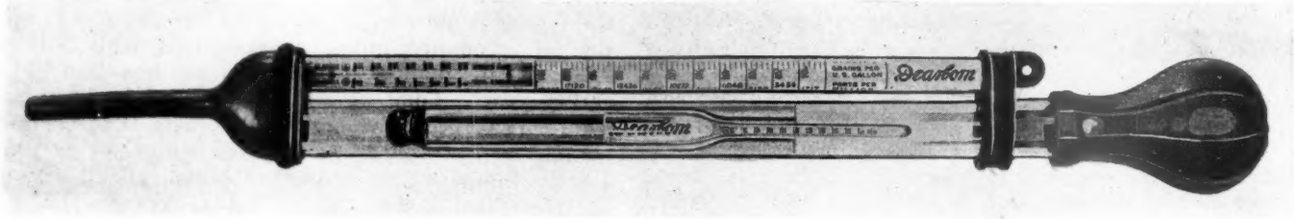
Car Loading in Canada

Total car loadings in Canada for the week ended March 26 amounted to 38,693 cars. This was a decrease from loadings for the previous week of 4,461 cars but, after making adjustments for seasonal variations for the holiday on Good Friday and for the holiday being earlier than usual this year, the index number showed a drop from 72.94 for the previous week to 70.01.

Without adjusting the loadings for each commodity group, it is not practicable to make comparisons with either the previous week or with loadings for the twelfth week last year, Good Friday being in the fourteenth week in 1931.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
March 26, 1932	38,693	23,840
March 19, 1932	43,154	24,079
March 12, 1932	41,739	21,311
March 21, 1931	49,661	29,724
Cumulative Totals for Canada		
March 26, 1932	492,251	259,197
March 21, 1931	558,420	332,408
March 22, 1930	682,605	441,246

VACATIONLAND is the title of the summer resort advertising pamphlet of the Maine Central for 1932. This is a pamphlet of 66 double pages, the distinctive feature of which is a profusion of interesting pictures on practically every page.



Hydrometer for Determining the Concentration of Boiler Water

Baltimore & Ohio Installs Centralized Traffic Control

Trains operated by signal indication increase track capacity of 56-mile heavy-traffic single-track line

The Cairo Lap Layout Looking North

THE Baltimore & Ohio has recently installed centralized traffic control, including automatic block signaling, on 56 miles of single-track line between North Lima, Ohio, and Roachton, which is the northern section of the operating division extending between Cincinnati and Toledo. This division is double track between Cincinnati and North Dayton, 62.4 miles, between Kirkwood and SW cabin through Sidney, 10.1 miles, and between Erie Junction and North Lima, 4.5 miles. On the remainder of the line between Dayton and Lima several of the passing track switches are power operated and controlled remotely. Therefore, so far as track capacity was concerned, the single-track subdivision between North Lima and Toledo presented the most serious problem. It was decided that the most economical and satisfactory method of expediting train movements in this territory was to make certain track changes and install centralized traffic control.

Track Layout Improvements

Prior to the recent improvements, the line was single track between the yard office at North Lima and Roachton, double track between Roachton and Bates, and single track between Bates and Lake Shore Junction near Toledo. Passing tracks were located as shown in the table. It was decided to extend the double track and increase the length of sidings to accommodate 150 cars, in order to provide for a maximum number of non-stop meeting points, thereby insuring maximum benefit from the proposed C.T.C. installation.

Previous Arrangement of Sidings

Location	No. of Passing Tracks	Capacity Cars
Cairo	2	92— 88
Columbus Grove	1	110
Ottawa	2	128—145
Leipsic	1	155
Belmore	1	94
Deshler	2	92— 90
Weston	1	103
Custar	1	94
Tontogany	1	120
Haskins	1	93
Roachton	2	125—118

The end of double track at the yard office at North Lima was extended about 1.5 miles northward, and the northbound advance siding and the southbound pull-in track were constructed northward to the end of the double track, these switches being the most southerly in the C.T.C. territory. The pull-in track permitted trains to clear the main line promptly, even when the southbound yard could not handle them immediately. The northbound advance siding permitted trains, after being made up, to advance to the end of double track and depart as soon as the dispatcher was able to handle them.

The two passing sidings at Cairo were reconstructed and, with the lap, afford the equivalent of approximately three miles of double track, an ideal point for meeting trains, all four switches of these two sidings being in the C.T.C. system. The passing siding at Columbus Grove was extended southward to hold 150 cars, the south switch being in the C.T.C. system and the north switch controlled by the "CG" tower interlocking plant. The two passing sidings at Ottawa were reconstructed similar to those at Cairo, being extended to hold 150 cars, with a short lap between them, and all switches were controlled by the C.T.C. system, thus providing the equivalent of three miles of double track. The passing siding at Leipsic was extended northward and crossovers were installed in the middle to provide space for two 150-car trains, or a running track about three miles long. The north and south switches are controlled by the C.T.C. system, and the crossover switches in the center are controlled by a new interlocking plant at the Nickel Plate crossing (Leipsic Junction).

The passing siding at Belmore was left in service to permit local trains to get in the clear, but these two switches were not included in the C.T.C. system. At Deshler the two old sidings were extended to hold 150-car trains, and a new 150-car siding was constructed south of the Chicago Division crossing and east of the main track. A system of crossovers was installed south of the Chicago Division crossing, which permitted parallel movements on the main track and also between the two divisions. These crossovers, together with inlets and outlets to the three passing sidings, are controlled by the C.T.C. system.

At Custar the passing siding was extended south to hold 150 cars, the switches at the ends of the passing track being handled by the C.T.C. system. The Weston passing siding was extended south to hold 150 cars, the switches being controlled by the C.T.C. system. At Tontogany the passing siding was extended south to hold 180 cars, the south switch being handled by the C.T.C. system and the north switch by the interlocking plant at Tontogany. The Haskins passing siding was extended north to hold 150 cars, the switches at both ends being handled by the C.T.C. system. The east siding at Roachton was converted into main track, making the north end of single-track at "ON" cabin about 1.5 miles north of the north switch of the passing siding at Haskins. The end of the double track at "ON" cabin was taken into the C.T.C. system, this being the most northerly switch so operated. The

north end of double track at Bates is controlled by an interlocking plant at that point. An interlocking plant was constructed at Pennsylvania Junction to protect movements from the Wheeling Belt, Pennsylvania and T. & O. C. connections, crossovers and connections being constructed and rearranged to handle parallel movements.

At Tontogany there is the junction with the branch line to North Baltimore over which the "Ambassador" and other through trains between the east and Detroit are operated. At Deshler, the Roachton-Lima line crosses the B. & O. double track main line between Chicago and New York, connecting tracks being provided for the interchange of traffic. This crossing is protected by the centralized control system, as described later. At Leipsic Junction, the B. & O. crosses a double-track line of the Nickel Plate, a new interlocking being installed and placed in service December 8, 1931. At Leipsic, the B. & O. crosses a single-track line of the Detroit, Toledo & Ironton, a mechanical interlocking being in service at this point. At Columbus Grove the B. & O. crosses a single-track line of the Akron, Canton & Youngstown, a mechanical plant being in service here.

Character of Line and Traffic

The line between Roachton and Lima traverses an open prairie country with few curves and long tangents; from Ottawa north the line is tangent for 41 miles. From Roachton, 11.7 miles from Toledo, the line ascends on a gradual grade of about 0.073 per cent for 33 miles to Leipsic Junction, beyond which point it descends at a rate of about 0.183 per cent for 6.9 miles to Ottawa and then again ascends on a grade of about 0.193 per cent for 16.2 miles to North Lima.

The rating for the freight locomotives used on this territory is 7,500 tons southbound and 10,000 tons northbound. The lading includes merchandise and manufactured products moved in both directions the year around. In addition, during the navigation season, a large volume of coal from the Kentucky and West Virginia fields, secured from connections at Cincinnati, is handled north to Toledo. Likewise, iron ore is moved southbound, these two commodities forming a large percentage of the tonnage.

The traffic includes seven fast through freight trains in each direction daily, the practice being to take all of the merchandise loads available and to fill out the "Quick Dispatch" rating with any other tonnage in the yard. In addition to these 14 trains, 2 or 3 tonnage trains are operated daily, this number increasing to 8 to 10 such trains during the heavy traffic season when large quantities of coal and ore are being moved. Five passenger trains are operated in each direction daily, in addition to one train between Toledo and Tontogany. The traffic normally includes about 30 trains daily and reaches a maximum of about 45 in heavy traffic seasons.

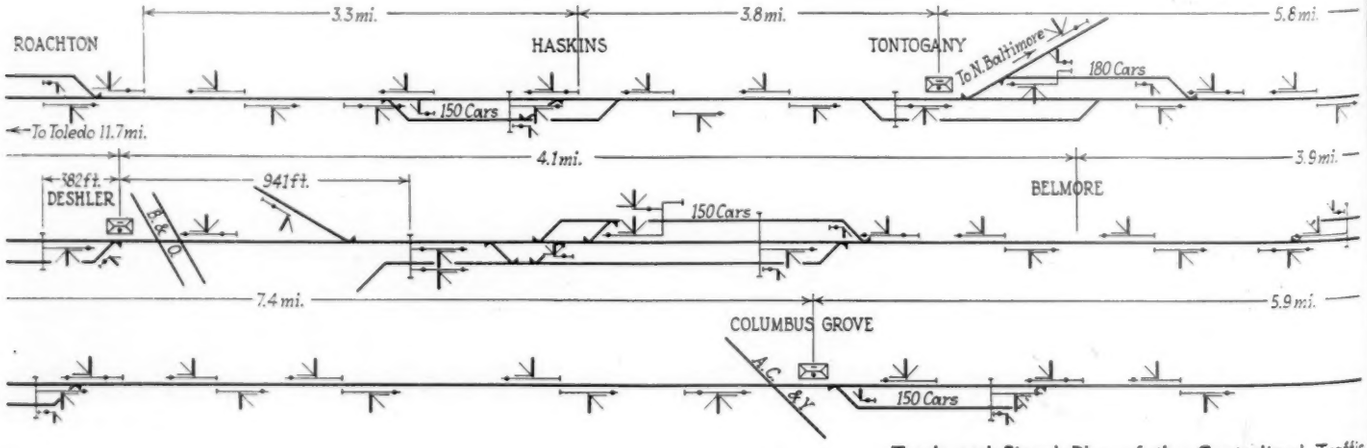
Results Accomplished

The principal reasons for making the track changes and installing the centralized traffic control system were: (1) To eliminate the necessity for trains stopping when entering or leaving a siding or stopping or slowing down to pick up train orders; (2) to increase the track capacity by means of closer spacing between following trains; (3) to promote safer operation by insuring correct switch position, and affording signal protection against collisions; (4) to permit a saving in operating expenses as a result of a reduction in overtime for engine and train crews, savings in locomotive fuel and closing of manual block offices.

Prior to the installation of centralized traffic control, trains were operated by time table, train orders and manual block, no automatic signals being in service. Block offices were in service at 14 points: North Lima, Cairo, Columbus Grove, Ottawa, Leipsic, Belmore, Deshler, Custar, Weston, Tontogany, Haskins, Roachton, Perrysburg and Bates. Under the centralized traffic control system train movements are now directed by signal indication without written train orders, and without superiority of trains. The meeting points can now be arranged according to immediate conditions so that very little time is wasted for meets. Some of the block offices have been eliminated, while at certain stations a telegrapher, now on duty on the first trick only, acts in the capacity of an agent; furthermore, levermen are retained for each trick at the interlockings at Columbus Grove, XN tower, Leipsic Junction and Tontogany. As a result of these changes, 14 operators were relieved from duty elsewhere, thus making a total annual saving of $26,174. The dispatchers formerly located at Dayton were moved to Deshler and now have charge of the centralized control machine.

The new system was completed in three sections, the last one being placed in service on October 15, 1931. As traffic has been extremely light since the C.T.C. system was placed in service, the system has not yet been utilized to the fullest extent. However, it is the opinion of the officers interested, on the basis of the results achieved to date, that with either normal or extremely heavy traffic, the system will be productive of all the benefits enumerated above.

The centralized traffic control on this territory was furnished by the Union Switch & Signal Company.



Track and Signal Plan of the Centralized Traffic

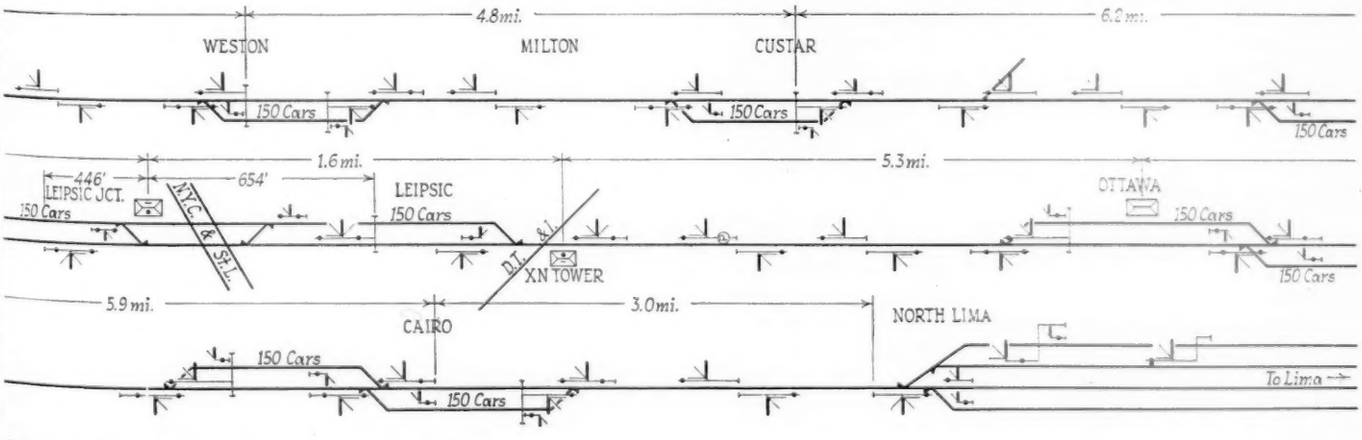
The Control Machine Is So Arranged That All Levers Are Easily Reached by the Dispatcher

The control machine is of the latest unit type, being made up of three standard sections, with the end sections set at an angle so that all the levers are within easy reach of the dispatcher when seated. The top is in one piece and the sections are so fitted that the machine has the appearance of being a single unit. The control machine has a total of 35 signal levers and 35 switch levers. An illuminated track diagram, extending across the top of the machine above the levers, includes 76 lights indicating as many sections of track, all of the main line single track being indicated excepting that between the switches of sidings. The switch levers are in a row beneath the diagram and the signal levers are in a second row.

The switches and signals within the interlocking limits of the crossing at Deshler are controlled by the dispatcher by means of an all-relay interlocking. In addition, the signals governing movements over the crossing are controlled through table-lever circuit controllers located on the Chicago Division operator's table so that the co-operation of both parties is necessary before a signal can be cleared to permit a train to pass over the crossing. This is accomplished by the Chicago Division operator first placing in the clear position the lever for the particular signal that he wishes to clear and then telling the dispatcher, who is located in the adjacent room, what route he has lined up; the dispatcher then places the corresponding lever on the C.T.C. machine in the clear position and pushes the starting button, which will permit the signal to clear. It will be noted that the dispatcher's operation is precisely the same for the interlocking as for the code-controlled locations, but in case the Chicago Division operator has not first placed a circuit controller lever in the proper position, the signal will not clear and, conversely, if the dispatcher does not arrange his set-up to correspond with that of the operator, the signal will not clear.

A separate three-wire code circuit extends south for the control of all units between Deshler and North Lima, while another three-wire code circuit extends north to control the units between Deshler and Roachton. The circuit code system employed in this installation provides for effecting the control of a switch or signal, or a combination of a switch or signal control, in approximately 1.5 sec. A complete indication of the condition of signals, switches and OS-ing section at an outlying location is in turn conveyed and registered on the control panel in 1.5 sec. The combination of a switch and signal control in one code, and the indication of the condition of all signals, switches and OS-ing section at a location by one code, result in this being one of the fastest C.T.C. code systems made available to date.

The automatic train graph, mounted in a recess in the top of the machine desk, has 39 pens for "OS-ing"



Control Territory Between Roachton and North Lima

the passing of trains at the same number of points on the territory. In order to permit the use of standard-size graph paper, two separate sheets are used side by side and are operated by the same mechanism. A unique method, which is of considerable assistance to those checking the graph sheets, is the use of long rubber stamps, by means of which the track diagram for the territory can be stamped on the train sheet at various intervals; for example, at the beginning of each trick.

The interlockings at Tontogany, Leipsic, Leipsic Junction and Columbus Grove, which are remote from the control point, are jointly controlled by the dispatcher and the leverman at the particular interlocking. An illuminated model board is placed above the machine at each of these points, with arrows on the lights indicating the direction in which traffic is to be moved. To make a move through the interlocking, the dispatcher sets the switch and signal levers on the C.T.C. machine in the proper position to line up a particular route and then pushes the starting button in the same manner as if he were operating functions at one of the remote locations, but instead of the code operating the functions at the remote location, it operates relays which, in turn, control lights on the track model and close the signal control circuits, so far as the dispatcher's control is concerned. The leverman then operates those switch and signal levers that will set up the particular route indicated by the track model. Since this closes the signal circuits, so far as the leverman is concerned, the signal will then clear.

Power Distribution

The a-c. floating system of power supply is used for this entire installation. Power is purchased at seven different points, at each of which a small switchboard is provided so that power can be fed each way or the station can be cut out and the feed circuit cut through. At each location including a power switch, a battery of 12 cells of Exide storage battery is provided for the switch and signals and local code circuits, while at an intermediate signal location six cells of battery are used for the signals and control circuits. All storage battery is on a-c. floating charge from Union copper-oxide rectifiers.

This signaling and centralized traffic control system was installed by the signal construction forces of the Baltimore & Ohio, under the supervision of E. T. Ambach, assistant signal engineer, and under the direction of the Union Switch & Signal Company which furnished the equipment.

THE RAILWAY FIRE PROTECTION ASSOCIATION, W. F. Hickey (New Haven, Conn.) president, has issued News Letter No. 46. Particulars are given of the circumstances of a number of fires including discussion of causes; one in a shop, one on a pier used as a fertilizer storage house, one in a grain elevator and others.

CONSTRUCTION OF NEW HIGHWAYS and other public works in the state of New York this year will be carried out according to a program two-thirds less than for 1931; and as the railroads of the state last year carried for this class of work about 155,000 carloads of cement, sand, stone and gravel, the associated general contractors of the state call upon the railroads and all citizens to appeal to the legislature for an enlargement of the program. "You are losing 100,000 carloads a year," they say to the railroads, and at the same time "there is far more unemployment this year than last." The contractors ask co-operation in appealing to the governor to call a special session of the legislature.

Texas & Pacific Overhauls Water Supplies

(Continued from page 598)

driven by a 10-hp. oil engine is set on this floor and is provided with an 8-in. suction line extending into the river. This pump drives the water over the levee where it passes through a water engine into a 190,000-gal. conical-bottom lime-soda ash treating and settling tank. After the water has passed through the treating tank it flows by gravity through a 10-in. cast iron pipe line to a 100,000-gal. elevated steel service tank located on the right-of-way at Vacherie, from which connection is made through a 12-in. line to a water column located between the main tracks.

At Van Horn, Tex., about 125 miles east of El Paso, where the rainfall averages only 12½ in. per annum, the water supply problem resolved itself into one of deep wells, and, fortunately, a soft water is obtainable from this source. There are four wells at Van Horn, with a combined average monthly output of 6,000,000 gal. and, until recently, all of these wells were worked with steam pumping equipment, which was both inadequate and uneconomical of operation. Two of the wells were equipped with semi- and full-Diesel engines and highly efficient deep-well pumps, and alone now meet the full water demand at this point. The other two wells are still equipped with steam heads, which, with the old boiler plant, are held for use in case of emergency.

Large Savings are Being Effected

With many of the water service improvements on the Texas & Pacific relatively new and in service an insufficient length of time to permit the determination of their real economy and worth, detailed results from the extensive improvements on the road as a whole are not available at this time. However, it is definitely known that large economies are being effected in many instances, these being reflected principally in reduced water-service forces, reduced pumping costs and increased life of boiler flues.

In 1915, the average cost of pumping water on the system as a whole was 18 cents per 1,000 gal., whereas during the last 15 years this figure has been gradually reduced until today the average cost is only about 8 cents per 1,000 gal. At Van Horn, where semi- and full-Diesel engines and highly efficient deep well pumps replaced old steam pumping equipment, the cost of water was cut from 67 cents per 1,000 gal. to 8 cents.

Since the introduction of water treatment, locomotive boiler flue life has been increased from an average of about 50,000 miles to approximately 100,000 miles, and freight engines now operate over 350-mile divisions whereas 150-mile divisions were formerly the limit. One passenger-engine division has been increased to 625 miles.

At Fort Worth, before a lime-soda ash plant and an effective settling basin were provided to treat the hard creek water used, the stationary boilers were usually run on 20 to 30-day periods. Since the provision of the treating facilities, the run of the boilers has been extended to 60 days, and at the end of these periods, the amount of incrusting scale found is only about 15 per cent of what was found in the shorter periods.

All of the water service improvements on the Texas & Pacific have been planned and carried out under the direction of E. F. Mitchell, chief engineer, and R. L. Holmes, engineer water supply.

Communications . . .

Motor Travel Allowances To Employees Are Too Liberal

ALBANY, N. Y.

TO THE EDITOR:

One day this Winter when the highways were blocked with snow a conversation was overheard in a Pullman smoking room to the effect that a private automobile could be operated for 4.6 cents per mile. The speaker appeared to have definite figures for all details including contingencies and repairs.

This figure checks with the 4.6 cents given on page 456 of the *Railway Age* of March 12, for cars owned by the State of California.

When consideration is given present costs of gasoline, oil, tires and cars and the greatly increased mileage of tires it is probable that the figure quoted is not far from correct.

On the other hand it is understood that the mileage allowance of business firms, states and railroads themselves for privately-owned cars operated on company business is from 6 cents to 12 cents per mile with 10 cents the prevailing figure. These allowances were probably correct if established a dozen years ago.

Further investigation leads to the conclusion that the railroads are losing considerable traffic, not so much due to the advantage of automobiles as to the fact that the privately-owned car is earning money to supplement the salary of the owner-operator.

It is possible that the highways would not be so crowded as they are and the railroads would come nearer getting their fair share of traffic if automobile allowances were based on the equivalent of the railroad fare which is the procedure followed by some states and companies.

ROBERT B. ELSWORTH.

Appeal To Legislators

WEST CONCORD, MASS.

TO THE EDITOR:

Regarding the "Call for Volunteers," I am of the same opinion as "the man who represents several large manufacturers" (*Railway Age,* Feb. 20.). I am a signal maintainer, and from observation am aware of the plain fact that conditions *are serious.* Many other fellow employees are aware of this same fact. However, lacking leadership, we are dormant so far as doing anything to correct faults is concerned. We individually might be able to get a little extra passenger or freight business for our road. Even though this helps, so far as getting for the railroads that which rightfully belongs to them, we get nowhere at all.

Proper legislation, local, state and federal, is unquestionably paramount at this instant, but how is it to be gotten? All of the oratory and printed words seem to do is to keep "life in the dying embers." What is needed is action. The only way action can be produced is to get started. Because the individual railroads, supply houses, and interested parties seem to lack the courage or initiative, why don't you start the "irresistible force" in motion: It seems to me that since you and the A. R. A. are in direct communication with members in every phase of the game in all parts of the United States, you could proceed along some such lines as these:

Get volunteers, and organize them, from the subscription lists of the trade journals and A. R. A. membership lists. Find out what specific legislation is wanted by the railroads. Get petitions printed, and then get them into the hands of the volunteers for circulation from the Atlantic to the Pacific and from the Canadian border to Mexico. Arrange to have every railroad and supply company canvassed with these petitions. Many citizens' names could be secured for these papers even though the citizens were not affiliated with railroads. At a given time present these petitions to the proper law makers, and without a doubt the multitude of names would once and for all convince the law makers that there is a decidedly representative number of people interested in the railroads. Certainly these demands in petition form would command earnest attention, and immediately.

You will pardon my suggesting that you tackle this job, but some one should and must do it if results are to be obtained, and certainly you are in a position to know the proper line to pursue. I am one of many who will be very willing to do all in their power to start and keep the "force" going until the goal is reached.

FRANCIS J. AHERN.

Is This What The I. C. C. Is Planning?

TOLEDO, OHIO.

TO THE EDITOR:

Permit me to congratulate you upon your editorial entitled "Regulation of Railway Earnings" in your issue of March 5. Although I am not acquainted with everything which transpired in the hearing before the House Committee, I have nowhere read that any reference has been made in the hearings to I.C.C. Order No. 15100, Depreciation Charges of Steam Railroad Companies, and the proposed revised accounting regulations about to be issued. In my opinion H.R. 7116 and 7117 are merely pieces of legislation which if passed will enable the Commission to find lawfully any value it chooses as a test of fair return.

I have just read the Commission's decision in F. D. No. 9147 in which the Commission approves a loan to the St. Louis-San Francisco Railway Co. from the Reconstruction Finance Corporation "of $2,805,175 to meet fixed interest obligations due on or before March 1, 1932." At page 7 of this report the Commission finds a value of $286,760,000 which is undoubtedly what the Commission would find as "rate base" or "investment" under the present proposed legislation. In the I.C.C. *Statistics of Railways* for the year 1930 I find Investment in Road and Equipment stated as $427,123,536 and securities at $411,120,320.

At page 5 of the report I find this:

> In 1931 depreciation of equipment charged to operating expenses was reported as $3,568,622. This sum was added to the amount available for interest payments, which enabled the carrier to meet its fixed charges in 1931. * * *

In the opinion of this writer the above is not in accord with the Accounting Regulations.

In view of the findings of the report in F.D. 9147 I fail to see how the credit of the Frisco has been improved from the standpoint of the investing public.

As I understand these matters, under Order No. 15100 and the revised Accounting Regulations, the carriers will be required to write down their Investment in Road and Equipment to a figure which the Commission calls "rate base" or to what the Commission thinks the investment ought to be. H.R. 7116 and 7117 make such action legal. Thus, for example, the Commission would require the Frisco to write down its Investment in Road and Equipment from $427,123,536 to $286,760,000.

W. M. HOOVER.

IMPRISONMENT of from six to twelve years was the sentence handed down at Ebensburg, Pa. on March 17, as punishment of Luther Mazur, 15 years old, who was convicted of involuntary manslaughter in causing the wreck of a freight train on the Pennsylvania Railroad on December 9, 1931, (derailment reported in the *Railway Age* of February 6, p. 240) when one of the brakemen was killed. The train ran away on a steep grade because of failure of the airbrakes, and Mazur was held guilty of closing angle cocks, causing the brake failure.

Odds and Ends . . .

The Champion Handshaker

The title of champion handshaker of New York has been awarded to William H. Egan, general station master of the Pennsylvania, in that city. Mr. Egan has been meeting and shaking hands with celebrities since 1897, first at the Twenty-Third Street ferry station and since 1910 at the Pennsylvania station. He is also a member of the mayor's reception committee, which seems quite fitting.

This Week's Candidate for a Humane Society Medal

As his Pennsylvania train, No. 31, roared past Bunker Hill, Ind., one day recently, Engineman A. W. Paxton, leaning out of the window of his cab, saw a luckless dog caught in a barbed wire fence. The dog was just a mutt but that made no difference to Mr. Paxton. Ending his run at Logansport, Ind., he hurried to his automobile, drove 30 miles back to Bunker Hill, located the fence and freed the dog.

A Rival for the Mammoth Cave

If you want to see stalactites and stalagmites, take a trip to Wooster, Ohio. Here there is a railroad bridge, the under side of which is decorated by more than 300 stalactites, formed by rain water filtering down through 4 ft. of limestone ballast before dripping to the ground below. The largest of these stalactites is said to be 12½ in. long and ½ in. in diameter. Where the water has dripped on the steel girders below, stalagmites have formed.

Adjoining Freight Cars With Same Number

Recently the Gulf States Creosoting Company plant at Meridian, Miss., loaded two flat cars with telephone poles for a consignee at Quinlan, Okla. There was nothing unusual about that, but there was something distinctly unusual in the fact that one of the cars was M&O-70416 and the other IC-70416. If you are good at mathematics, you might try figuring out the chances of two cars with the same numbers being coupled together in a train again.

They Don't Know Where They're Going But They're on Their Way

Perhaps the railroads in this country have been mistaken in looking for passenger business among people who know where they want to go. One of the enterprising railways in England is going after business from another angle. It is running a series of special trains, particularly for hikers, to destinations which remain a mystery to the passengers until the trains are under way. All the passengers need is a little money and a lot of curiosity. Their itineraries are handed to them after the trains have started. On the first trip, during the Easter week-end, more than 2,000 passengers crowded the two sections of the special train.

The First Containers

Freight containers are commonly supposed to be an ultra-modern medium of transportation, but it seems that they are not. The Railway Gazette (London) quotes a letter to the London Times which states that "as far back as 1833, containers were introduced by the Canterbury & Whitstable Railway Company." In the report of the owners of the railway, dated July 18, 1833, it was pointed out that "carriages of a new description for merchandise are building, whereby goods will be transmitted from the ship to their destination in Canterbury without being shifted in the interval, a plan which must afford such universal satisfaction as of itself to be the means of securing a considerable increase of business to the company." How history repeats itself is indicated also by the fact that entries in the minute-book of the Canterbury & Whitstable show that in those days the railway was trying to capture traffic from the highway carriers.

Lost and Found

There is no limit to the absent-mindedness of railroad travelers, and there is no telling what they are likely to leave on trains. One passenger on the Pennsylvania, for instance, left a peg leg. Possibly this is a tribute to the absorbing interest of the scenery adjacent to the Pennsylvania tracks. Among other unusual articles turned in at the Pennsylvania's lost and found department last year were a bird in a cage, a set of false teeth, a pair of crutches and a wash boiler. Here are some data bearing upon the relative forgetfulness of women and men. Last year 456 women's umbrellas were turned in to the railroad's lost and found bureau, while only 105 umbrellas found on trains had crooked handles and presumably had been left by men. It was the same way with jewelry, women passengers losing 54 pieces, while men lost only 14. Likewise, 176 women's pocketbooks were left behind, while only 54 of the kind carried by men were found. When it comes to hats and coats, however, men are the worst offenders. Last year 49 men's hats were found on Pennsylvania trains, while women were not far behind with 45. It was the same with coats, 110 men leaving theirs behind and 91 women forgetting theirs.

The Lincoln Ghost Train

Here is one of the best railroad ghost stories that we ever heard of, told by Charles E. Browne of the State Historical Museum at Madison, Wis., in a recent issue of the Milwaukee magazine. As Mr. Browne tells the story, it goes like this:

"Tales of the appearance of phantom trains or engines on various railroad lines were occasionally heard in former years. Some old railroad men in the middle west assert that, during the months of April and May of each year, (April 28 to May 3) the anniversary of the passage of the funeral train of President Abraham Lincoln (1865) over the Big Four, the Chicago & Alton and other railroad lines through the states of Ohio, Indiana and Illinois on its way to Springfield, a ghost funeral train again rolls over this route.

"The phantom train makes its appearance late at night. For its flight, the lines are mysteriously cleared. As the time for its appearance approaches, everything becomes oppressively quiet. Not a human or other sound is heard. A strange feeling of apprehension and terror takes hold of those who are on duty along the tracks, or who happen to be in the vicinity.

"A light is seen in the distance. It is the headlight of the pilot engine of the funeral train. It approaches rapidly and hurtles by with lightning speed. After it has passed another light is seen and the unearthly shriek of a locomotive is heard. The headlight grows larger and larger and fairly blazes with a blinding glare as it draws near. The muffled engine bell is heard tolling with a mournful tone. This is the funeral train bearing the bodies of the martyred president and his young son to their last resting place at Springfield.

"The Lincoln ghost train is being run by the dead. In the dimly lighted engine cab are the engineer and fireman, both grinning skeletons. The train, consisting of the funeral coach bearing the caskets and a number of other cars, is heavily draped with black and silver mourning drapes. On the platforms of coaches, swinging lanterns, are the conductor and brakemen. Although fully uniformed, all are of the dead. Other skeleton faces peer from the coach windows. There is a great rush of wind and the heavy steel rails rumble and seem to groan as this phantom train crashes past and is lost to sight in the dense black of the night.

"Those who claim to have seen the Lincoln ghost train never wish to witness its passing again during their lives."

We are endeavoring to bring other such railroad ghost stories to light, and would be glad to have our readers contribute any with which they are familiar.

NEWS

Kentucky Enacts New Motor Vehicle Laws

Reduced size and weight limitations and mileage taxes are established

Reduced size and weight limitations and mileage taxes are among the provisions of recently-enacted Kentucky laws prescribing increased regulation of motor carriers for hire operating within that State. Contract as well as common carriers are brought within the provisions of the new laws which make the declaration "that the business of contract carriers is affected with a public interest and that the safety and welfare of the public, the preservation and maintenance of the public highways, and the integrity of the regulation of common carriers require the regulation of contract carriers."

Two laws are involved in the new legislation—the Motor Truck Act, which relates to weights, dimensions and other physical requirements, and the Bus and Truck Regulatory Act, which is concerned with certificates, permits, rates, practices, mileage taxes, etc. The former prohibits the operation of any vehicle exceeding in weight 18,000 lb., including load. Such a load may be carried on a truck or truck and semi-trailer which vehicles or combination are not permitted to exceed in length 26½ ft. and 30 ft. respectively including load. The operation of trailers is prohibited, the trailer being defined as "any vehicle designed to be drawn by a motor truck, but supported wholly upon its own wheels, and intended for the carriage of freight or merchandise and with a load capacity of over 1,000 pounds." As to height the limit is placed at 11½ ft. including load while the maximum width permitted is 96 inches.

Speed limits are fixed at 30 miles per hour if the gross weight, including load, exceeds 5,000 lb. and at 40 m.p.h. if the gross weight is under 5,000 lb. In this connection trucks are required to be equipped with a speed governor which shall automatically prevent their operation in excess of the maximum speeds authorized. Exemptions are provided for State and municipally-owned vehicles as well as for vehicles operating wholly within cities or towns and licensed by these latter. Penalties for violations are fines of not less than $15 nor more than $200 and costs; arresting officers, other than special officers of the State Highway Commission or the State Tax Commission, receive a $5 fee for each arrest resulting in a conviction.

The Bus and Truck Regulatory Act requires common carriers to procure certificates of convenience and necessity and contract carriers to obtain permits. The State Tax Commission is given broad discretionary powers over routes, rates, abandonments, schedules, safety and employee hours of service. All carriers for hire are required to file bonds while applications for certificates involve a $25 filing fee and those for permits a $20 assessment.

Both common and contract carriers are subject to the following taxes per vehicle mile:

Buses.—With a seating capacity of not more than seven persons, one-fourth cent; 8 to 16 persons, one-half cent; 17 to 25 persons, three-fourths cent; 26 to 29 persons, one cent; 30 or more persons, three cents. An increase of 100 per cent in the foregoing mileage rates applies to any bus "if the annual registration fee prescribed by the law of this State on like motor vehicles is not paid because such vehicle is engaged in interstate commerce."

Trucks.—On each vehicle weighing more than 5,500 lb. and not more than three tons unladen, one-half cent and one-half additional cent for each ton or fraction thereof, which the unloaded vehicle weighs in excess of three tons. Interstate truckers, paying no Kentucky registration fees, must pay 30 per cent additional in mileage taxes while solid-tired vehicles are assessed 50 per cent extra. The State Tax Commission is empowered to prescribe mileage-recording devices.

Both laws declare that there respective sections are severable and that if any provision be held unconstitutional or void the remaining provisions shall continue in effect.

Southern Pacific Transport Company of Louisiana Organized

The Southern Pacific Transport Company of Louisiana has recently been organized for the purpose of providing shippers and receivers of l.c.l. freight with store-door collection and delivery services, co-ordinated with the rail operations of the Texas & New Orleans. The Transport Company will offer a complete transportation service, accepting shipments at origin, issuing its own bills of lading, providing for the rail haul through a contract with the T. & N. O. and arranging for delivery at destination.

Under the contract, T. & N. O. station forces at points served by the Transport Company, and certain other officers and employees, become joint employees of the railroad and the subsidiary.

Trunk Lines to Cancel Extra Fares April 24

Only accelerated Century and Broadway will retain charge—Other schedules to be cut

All extra fares between New York and Chicago and New York and St. Louis except on two New York-Chicago eighteen-hour trains—the Twentieth Century Limited of the New York Central and the Broadway Limited of the Pennsylvania—will be eliminated on April 24. The Century and the Broadway are now 20-hour trains and their acceleration to meet the 18-hour running time will be accompanied by the speeding of most other New York-Chicago trains of the New York Central and the Pennsylvania to a 21-hour schedule.

The action of these two roads eliminates all extra fares on a time basis and other New York-Chicago and New York-St. Louis lines will take similar action although it is doubtful that the 21-hour schedules will be met by the latter. Some roads, other than the New York Central and the Pennsylvania, could undoubtedly make the 21-hour time but such action might involve the costly substitution of additional trains to give certain local services which are now afforded on the through trains.

The new extra fare on the Broadway and the Century will be $10 and will not be refundable in case of delayed arrival. Present extra fares apply on all trains running between New York and Chicago in less than 28 hours the rate being $1.20 for every hour saved. Thus the Century and the Broadway being 20-hour trains, each carry a $9.60 excess fare. Refunds are now made on the basis of $1.20 for each hour a train is late up to the point where the entire excess is refunded.

The new set-up means that coach services will be available on 21-hour trains at the standard New York-Chicago fare of $32.70; this compares with a charge of $50.10 ($32.70 plus the $8.40 extra fare plus the lower berth charge of $9) on present 21-hour trains which carry no coaches. Roads terminating in New Jersey have had a $2 differential under the standard New York-Chicago fare. It is likely that these roads will now seek a wider differential based, along with their terminal dissibilities, on the longer schedules which they will perhaps maintain. A meeting on this question has been called for April 12. The differential roads at present are the Erie and the Delaware, Lackawanna & Western.

(Continued on page 619)

Dr. Manion Decries Motor Competition

Canadian railways' minister blames troubles on highway subsidy and over-expansion

In the annual railway statement presented to the House of Commons at Ottawa last week Hon. Robert J. Manion, Minister of Railways and Canals, in moving second reading of the bill to authorize the provision of moneys to meet expenditures by the Canadian National during this calendar year and up to $61,500,000, gave a brief review of railway business in Canada, denounced unfair motor competition, declared the present Government had not imposed any "throttling economies" on the Canadian National, lauded the personnel of the Royal Commission on Transportation and intimated there was little chance for some time of any readjustment or reduction of the financial structure of the road. The bill, together with the estimates the road and its steamship subsidiaries, was referred to the House Committee on National Railways and Shipping.

Dr. Manion said: "This bill is the Canadian National Railways financing act of 1932, to permit the Canadian National Railways to issue securities for the year 1932 totalling $61,500,000, which represents the estimated needs of the national roads from the government of Canada for 1932. The bill comprises three chief items. There is, first, the net income deficit, made up of $42,500,000, not including any interest owing to the government of Canada. In view of the fact that often the total needs and various other items of the National Railways financing are confused, may I say, rather for those outside the house than perhaps for the information of hon. members who have studied the railway question, that the deficit referred to in this bill relates to the deficiency in earnings to pay not only operating expenses but interest due on the fixed bonds of the company, having been purchased in the past by the investing public.

"The deficit last year was over $50,000,000, which corresponded to the estimate this year of $42,000,000; and including the eastern lines it was over $60,000,000. It is quite possible, in view of the continuing decrease in earnings of the Canadian National, that the estimate of $42,784,000 for the coming year will be found to be an underestimate, because the railways, both the Canadian National and the Canadian Pacific, and in fact all the roads on this continent, are to-day earning less than they earned at the same time last year, which was a record low year compared with many past years.

"The second item in the bill is for equipment, $11,681,000. This is, in a sense, a new item in the bill for financing the Canadian National Railways, because in the past that money was borrowed under what was called the Philadelphia plan, twenty-five per cent being put up in cash, the other seventy-five per cent being borrowed from bankers in the United States and paid over a period of fifteen years. Owing to the international financial situation of the present day, however, the whole of this amount of nearly $12,000,000 must be borrowed from the people of Canada through the Canadian government.

"The third item is for construction and betterments, amounting to a little over $7,000,000. That is made up of capital expenditures, such as terminals, stations, branch lines, hotels, bridges and so forth.

"The difficulties which face the railways have been due largely to four causes. The first and chief cause is the fact that in the early days we built a second and third transcontinental railway when a second would have been amply sufficient. Two transcontinental railways would have been sufficient, but we went on and built a third.

"The second cause, which has not been mentioned so much but which has been forced upon me by my study of the question during the last year and a half, is the fact that the railways have been endeavouring to reach out for passenger traffic and have been forgetting that freight traffic should be their first concern. As a result of this desire for passenger traffic there have been built luxurious hotels, terminals, trains, steamships and so forth; tens of millions of dollars have been spent in this way when it would have been wiser had the railway companies realized that freight traffic should be their chief business.

"The third cause is motor competition, which might be termed unfair competition. I do not think that the railways of this country should have to face the competition of private companies operating their motors, buses and trucks for profit upon publicly built highways while the railways have to build very expensive highways of their own. The publicly built highways upon which these motor buses and trucks operate are built to a certain extent by the taxes paid by the two great railway systems.

"The fourth cause of the present depressed condition of the railways of Canada is the world business set-back which has taken place during the past three or four years."

Tunnel Bonds Held Valid

The United States Circuit Court of Appeals for the tenth circuit, in a decision on March 29, held that the supplemental Moffat tunnel bonds amounting to $8,750,000 are valid, and ordered the suit of eastern bondholders reinstated in the district court. However, the validity of the bonds still is in doubt because a case in which their legality is challenged is pending in the Colorado Supreme Court. If this court should declare the bonds invalid, a ruling of the United States Supreme Court would be necessary to straighten out the conflict between the federal and state courts. The circuit court decision reversed that of Federal District Judge J. F. Symes, who dismissed the case brought by the bondholders against the tunnel commission. The decision was given by Circuit Judge Robert E. Lewis, Circuit Judge George T. McDermott and Federal District Judge T. B. Kennedy.

Nation-Wide Standards To Favor Heavy Trucks

U. S. Roads Bureau seeking state O.K. for low tax, easy restrictions on motor transport

The United States Bureau of Public Roads is endeavoring to secure general acquiescence by state highway commissions in its views of what constitutes a fair basis of taxation for heavy motor vehicles. These views, which go to extremes in favoring these vehicles, were discussed editorially in the *Railway Age* of April 2, page 554. Briefly, they are based upon an allocation to the heavy vehicles of a much smaller proportion of total road construction costs than that judged by other authorities to be equiable; and they contemplate covering only a small proportion of total road costs out of motor vehicle taxation, the bulk of the mileage to be, as in the past, paid for by general taxpayers and owners of farms and other real estate.

Aside from the taxation features of the Roads' Bureau's program, it also proposes standards for weights, dimensions and speed limitations which, again, are extremely favorable toward heavy vehicles. The extent of the Bureau's liberality in its ideas of what fair restrictions ought to be is shown by comparing its recommendations with the limitations recently imposed in Kentucky, the latest legislation passed on this subject.

	Road Bureau's Recommendations	Kentucky Law
Maximum Speed	45 m.p.h.....	30 m.p.h.
Maximum Weight	8,000 lb. per wheel	18,000 lb. gross, all wheels combined
Maximum Height	12 ft.	11½ ft.
Maximum Length	33 ft. one vehicle, 65 ft. for a "train"	26½ ft. one vehicle, 30 ft. incl. load, no trailers allowed
Maximum Width	8 ft.....	8 ft.

The Bureau's tax and restrictions plan is the product of the "Joint Highway Transport Committee," which is composed of representatives of the National Automobile Chamber of Commerce and representatives of state and national highway commissions and bureaus. The plan is now submitted to the state highway officers and members of the National Automobile Chamber of Commerce to secure their approval which, if vouchsafed, would enable those who build the highways and those who profit from their use to show a united front on taxation and construction standards, without consideration of the views of property owners and others whose interests in the question are also vital.

P. & S. Division to Meet in Chicago

Division VI—Purchases and Stores, of the American Railway Association, will hold its annual meeting sometime during June in Chicago. The exact date of the convention, which will be a two-day session, and the hotel headquarters have not yet been decided upon.

Tentative Rate Scale for N. Y. Delivery Plan

J. W. Roberts quotes proposed charges in recent address on store-door services

Railroads serving New York are continuing their studies of proposals for store-door collection and delivery of carload freight in that city and "the principal features of a tentative plan have been worked out," J. W. Roberts, assistant vice-president of the Pennsylvania, revealed in a recent address on the general subject of "Store-Door Collection and Delivery Service" before the American Fruit and Vegetable Shippers Association.

Although Mr. Roberts pointed out that the problems of putting the plan into effect "are not as yet entirely solved," discussions have nevertheless reached such a point that he was able to quote tentative rates which have been considered for application within each of the several collection and delivery zones into which the plan contemplates dividing the four New York City boroughs of Manhattan, Brooklyn, the Bronx and Queens. The borough of Richmond, which comprises Staten Island, is not included. Also, the tentative plan would limit the service to carload shipments, inbound and outbound.

Tentative rates proposed for application within each zone were quoted by Mr. Roberts as follows:

"Where the consolidated freight classification minimum is 36,000 lb. and over, six cents per 100 lb.; under 36,000 and down to 30,000 lb., seven cents; to the 24,000-lb. minimum, 10 cents; to the 20,000-lb. minimum, 14 cents; to the 18,000-lb. minimum, 16 cents; to the 14,000-lb. minimum, 18 cents; and to the 10,000-lb. minimum, 20 cents.

"Carloads moving under 'any quantity' take the 30,000-lb. minimum charges.

"Exceptions are provided for newsprint and flour, which are to be one cent per 100 lb. lower than the general schedules; for paper on skids, waste paper and rags, two cents per 100 lb. higher; for automobiles and empty van bodies, which will take 25 cents per 100 lb. with a $10 minimum; for machinery or packages weighing more than 1,500 lb. each, a minimum of 18 cents per 100 lb.; for silk, 15 cents per 100 lb., with an additional charge of 10 cents per $100 of valuation. Live stock, animals and bulk freight will not be handled."

Agitation among New York railway patrons for some form of direct collection and delivery service for carload freight has continued since August, 1929, when the Interstate Commerce Commission permitted the carriers serving that city to cancel their constructive station tariffs and to limit the practice of trucking in lieu of lighterage to interchanges of freight between railroads or between railroads and steamship piers. In these conferences with shippers a sub-committee of the railroad president's conference committee represented the carriers; Mr. Roberts is chairman of the latter. This sub-committee, he revealed, filed a report on August 1, 1930, which report "with certain modifications has been recommended by the operating and traffic vice-presidents of the trunk lines to the presidents for their consideration, and it is now in the latter's hands. It has also received the acquiescence of shippers and receivers."

Speaking "as an individual" Mr. Roberts said he has "always been in favor of store-door delivery and felt that it would be a constructive step in the progress of transportation, particularly in New York."

In his general discussion of the subject Mr. Roberts pointed out that direct collection and delivery is already available in connection with a substantial portion of railroad freight. He cited carload deliveries at private sidings, the placing of perishables in auction rooms, and on display tracks and trap car services.

Proceeding to a consideration of store-door collection and delivery "in the more generally accepted sense, which means collection and delivery by trucking or drayage" the speaker outlined the status of such services in England and Canada and, with reference to the United States, discussed the Baltimore operation which was discontinued in 1913 and the present St. Louis services.

The recent collection and delivery services established by the Southwestern and the Northwestern roads, Mr. Roberts found, "differ in an interesting manner. The Northwest roads," he explained, "have established a scale of charges for the service which are intended to be completely remunerative, covering all costs. The Southwest roads, on the other hand, provide, generally speaking, for free collection and delivery service on hauls up to 300 miles in length with a scale of charges to apply to hauls beyond those distances."

This latter, the speaker contended, can be justified only as a device to meet highway competition since "Nothing is more clearly settled than the principle that the profitableness of freight transportation increases with the length of haul..... from that viewpoint, if free collection and delivery service were justified at all it would be on the long-distance shipments rather than on the shorter ones.

"However," he continued, "we must perhaps conclude that the roads were driven to this expedient by reason of the fact that they are faced with a form of truck competition which is itself unsound, on account of the failure to regulate trucks and perhaps to tax them properly. With the coming of adequate truck regulation by the Interstate Commerce Commission, which now appears to be in sight, this condition should be capable of correction."

In closing Mr. Roberts referred briefly to recent developments in the transportation of freight in portable containers and demountable truck bodies which devices he called "instrumentalities by which store-door collection and delivery services, in extremely valuable and useful forms, are being extended and will, I believe, be further extended in the future."

Net for Two Months Equals 1.08 Per Cent

Compares with 1.98 per cent in two months of 1931—February net is 1.35 per cent

Class I railroads for the first two months of 1932 had a net railway operating income of $33,739,170, which was at the annual rate of return of 1.08 per cent on their property investment, according to reports compiled by the Bureau of Railway Economics. In the first two months of 1931, their net railway operating income was $62,054,969, or 1.98 per cent. Operating revenues for the first two months totaled $542,586,806, compared with $702,711,738 for the same period in 1931, or a decrease of 22.8 per cent. Operating expenses amounted to $440,621,008, compared with $566,256,466 for the same period one year ago, or a decrease of 22.2 per cent.

Class I railroads in the first two months paid $49,081,521 in taxes, compared with $53,552,166 for the same period in 1931, a decrease of 8.3 per cent. For February alone, the tax bill amounted to $267,272,286, compared with $1,959,622.

Seventy-six Class I railroads operated at a loss in the first two months of 1932, of which 24 were in the Eastern district, 15 in the Southern, and 37 in the Western.

For February the net railway operating income was $22,042,614, which, for that month, was at the annual rate of 1.35 per cent. In February, 1931, the net was $27,714,532 or 1.69 per cent. Operating revenues for February amounted to $276,272,286, compared with $336,726,909 in February 1931, a decrease of 20.6 per cent. Operating expenses totaled $211,109,274 compared with $272,142,372 in the same month in 1931, a decrease of 22.4 per cent.

Class I railroads in the Eastern district for two months had a net of $28,808,077, at the rate of 1.98 per cent. For the same period in 1931, the net was $35,793,681 or 2.47 per cent. Operating revenues in the Eastern District for the two months totaled $283,069,045, a decrease of 20.6 per cent below the corresponding period the year before, while operating expenses totaled $221,438,745 a decrease of 22.6 per cent. Class I railroads in the Eastern district for February had a net of $16,989,289, compared with $16,142,485 in February, 1931.

In the Southern district for the first two months the net was $3,477,630, at the rate of 0.65 per cent. For the same period in 1931, the net amounted to $6,458,817, at the rate of 1.20 per cent. Operating revenues in the Southern district for two months amounted to $69,479,733, a decrease of 24.7 per cent under the same period in 1931, while operating expenses totaled $58,195,809, a decrease of 24.1 per cent. Class I railroads in the Southern district for February had a net of $2,736,202, compared with $3,083,744 in February, 1931.

Class I railroads in the Western dis-

trict for two months had a net of $1,453,463, at the rate of 0.13 per cent. For the same two months in 1931, they had a net of $19,802,471, at the rate of 1.73 per cent. Operating revenues in the Western district for the two months' period amounted to $190,038,028, a decrease of 25.2 per cent, while operating expenses totaled $160,986,454, a decrease of 20.9 per cent. For February the net of the Class I railroads in the Western district amounted to $2,317,123. The net of the same roads in February, 1931, totaled $8,488,303.

CLASS I RAILROADS—UNITED STATES

	Month of February		
	1932	1931	Per cent Decline
Total operating revenues	$267,272,286	$336,726,909	20.6
Total operating expenses	211,109,274	272,142,372	22.4
Taxes	24,668,715	26,628,337	7.4
Net railway operating income	22,042,614	27,714,532	20.5
Operating ratio, per cent	78.99	80.82	...
Rate of return on property investment	1.35%	1.69%	...
	Two Months Ended February 29th		
Total operating revenues	$542,586,806	$702,711,738	22.8
Total operating expenses	440,621,008	566,256,466	22.2
Taxes	49,081,521	53,552,166	8.3
Net railway operating income	33,739,170	62,054,969	45.6
Operating ratio, per cent	81.21	80.58	...
Rate of return on property investment	1.08%	1.98%	...

Ratings on Bill of Lading Forms Suspended

The Interstate Commerce Commission has suspended from April 7 to November 7 a proposal of the railroads to establish classification ratings on bill of lading forms on the basis of first class in less than carloads and third class in carloads.

New Parcel Post Rates Effective October 1

The Postoffice Department has announced its intention of placing the revision of parcel post rates recently authorized by the Interstate Commerce Commission into effect on October 1. The commission suggested that the increase be deferred until mail order houses had ample opportunity to revise their catalogues.

Investigation of Relations Between Railroad Officials and Politicians

Representative Golder, of Pennsylvania, has introduced in Congress a resolution directing the Interstate Commerce Commission to investigate and report to the President "regarding the relationships between the various political contractors, political combinations, and railroad officials." A preamble stated that "corrupt and unlawful agreements and conspiracies exist between railroad officials and political contractors" whereby hundreds of millions of dollars are paid to such contractors in excess of fair compensation and that part of the amounts are returned to the railroad officials. Representative Golder gave a statement to the press indicating that he believed the Pennsylvania and Reading have been working against his re-election to Congress.

Shippers Estimate Reduced Carloading

Shippers of the country, through estimates submitted to the Shippers' Regional Advisory Boards, anticipate that carload shipments of the 29 principal commodities in the second quarter of 1932 will be approximately 5,082,198 cars, a reduction of 756,374 cars or 13 per cent below the actual loadings during the same quarter of 1931.

All of the thirteen boards, according to the estimates, anticipate reductions, and it is estimated that of the 29 commodities, increases in transportation requirements will develop for only three, as follows: cotton, cotton seed and products, except oil, and fresh fruits other than citrus.

I.C.C. Examiner Finds Commission Has No Jurisdiction Over Broadcasting

Dismissal of a complaint filed with the Interstate Commerce Commission attacking the rates and charges of the National Broadcasting Company and Station WGBB for advertising broadcasting is recommended in a proposed report by Examiner W. M. Cheseldine made public on April 6 on the ground that the commission has no jurisdiction. He finds that the company is not operating as a common carrier and that broadcasting is not "transmission of intelligence" in the sense of messages and communications in connection with which there is to be a forwarding and delivery service.

Canadian Wage Reduction

Negotiations affecting 30,000 employees of the principal Canadian railways in the motor power and car departments have resulted in these employees agreeing to a wage cut of ten per cent as from April 1, 1932, to March 31, 1933.

The agreement was concluded between the Railway Associations of Canada and Division No. 4 of the Railway Employees Department of the American Federation of Labor. The railways concerned are the Canadian National, Canadian Pacific, Dominion & Atlantic, Temiskaming & Northern Ontario, Toronto, Hamilton & Buffalo, Northern Alberta, Esquimault & Nanaimo and the Quebec Central.

Further wage cuts, affecting another forty thousand men on different lines, comprising the Brotherhood of Maintenance of Way employees are expected to be the subject of negotiations during this week.

Bond Issue Proposed for River and Harbor Improvements

Hearings on the bill introduced by Senator Shipstead proposing an issue of $500,000,000 of 20-year bonds at not to exceed 4 per cent interest to complete authorized river and harbor projects were begun before the Senate committee on commerce at Washington on April 5. At the outset the bill was opposed in letters received from Secretary of War Hurley and Secretary of the Treasury Mills, while it was advocated by representatives of the Mississippi Valley Association. Secretary Mills said that the interest restriction might place the Treasury in a position of not being able to raise the funds necessary to finance projects now under contract and that it might have difficulty in selling a 4 per cent bond. Theodore Brent, traffic counsellor of the Mississippi Valley Association, said that interest and carrying charges on the government's investment in river and harbor improvements amounts to only $83,000,000 while he estimated the probable "public savings" in lower freight rates at $250,000,000 a year.

Correction

The item regarding the Cleveland low-water alarm on page 422 of the *Railway Age* of March 5 was incorrect in not specifying more particularly the type of equipment referred to. The item should have read:

The Cleveland float-type low-water alarm now being supplied by the Barco Manufacturing Company, 1801 Winnemac avenue, Chicago, has been renamed the Barco low-water alarm, under which designation it will be sold to the railroads in the future. The Talmage Manufacturing Company, 1279 W. Third street, Cleveland, Ohio, still manufactures and sells the Cleveland fusible-type low-water alarm.

Use of L. & A. by M. P. to Be Heard by Commission

May 11 has been set as the date of a hearing in Washington by the full membership of the Interstate Commerce Commission on the application of the Missouri Pacific and the Louisiana & Arkansas asking permission for the M. P. to use the latter's rails from Baton Rouge, La., to New Orleans. The railroads, if the application is granted, plan to construct a bridge over the Mississippi river at Baton Rouge. The bridge also would be used for highway traffic, with the Louisiana Highway Commission paying part of the cost of construction. The hearing will be confined to arguments by attorneys.

Club Meetings

The Car Foremen's Association of Omaha, etc., will hold its next meeting in Omaha, Nebr., on Thursday, April 14, at 2 p. m. H. E. Moran, general car foreman of the Chicago Great Western, at Council Bluffs, will present a paper on "Coaching the Interchange Inspector." The discussion will include Defect cards and Rule 4.

The Car Foremen's Association of Chicago will hold its next meeting at the Auditorium Hotel on Monday evening, April 11. The discussion will be on the A. R. A. Rules of Interchange.

The Western Railway Club will hold its next meeting Monday evening, April 18, at the Hotel Sherman, Chicago. The subject will be "Developments in Railway Transportation," presented by M. J. Gormley, executive vice-president, American Railway Association.

The Cleveland (Ohio) Railway Club will hold its next meeting on Monday evening, April 11, in the B. R. T. Build-

ing. C. R. Childs, supervisor of air-brakes on the Nickel Plate at Conneaut, will speak on airbrakes.

Chicago Traffic Club Elects Officers

The Traffic Club of Chicago has elected the following officers for the ensuing year: President, Henry A. Palmer, editor and manager of The Traffic World; first vice-president, W. D. Beck, district manager of the Car Service division, A. R. A.; second vice-president, R. J. Wallace, traffic manager of the Jaques Manufacturing Company; third vice-president, F. B. Houghton, vice-president of the Atchison, Topeka & Santa Fe; secretary, R. W. Campbell, manager of the Traffic Department of the Butler Paper Corporations, re-elected; and treasurer, J. H. Howard, manager of the Western Weighing and Inspection Bureau, re-elected.

Southeast Shippers' Board

The Southeast Shippers' Advisory Board held its regular meeting at Chattanooga, Tenn., on March 31. As in other territories, considerable decreases in freight traffic are expected in the current quarter, but the committees, reporting on the basic industries, evince unmistakable hopefulness in various directions. The textile mills report increased activity and expect a five per cent increase in shipments; and the cotton committee expects a movement 10 to 12 per cent better than in the second quarter of 1931; but the other reports show various prospective decreases: brick and clay, etc., 15 per cent; coal and coke 20 per cent; citrus fruits 12, fertilizer 30, potatoes 30, other fresh vegetables 15, grain 15, sugar and molasses 10. The peach crop season is expected to be very short.

W. R. Cole Criticizes Coal Commission Bill

A letter from W. R. Cole, president of the Louisville & Nashville, protesting against provisions of the bill S. 2935 to create a bituminous coal commission, was put into the Congressional Record on April 4 by Senator Logan. In connection with the "arbitrary control" granted to the commission, he called attention to section 8 of the bill, which prohibits a railroad building a siding or a switch for a new mine until and unless permission is received from the Interstate Commerce Commission, with the further limitation that the Commission can grant no such authority until it is approved by the coal commission. "Here then," he said, "is a proposal that the power of the coal commission shall be extended to the development or the nondevelopment of traffic on any and every coal-originating railroad in America. For example, the mines, or many of them, on a given railroad might 'work out' and its coal traffic reach the disappearing point, and yet, should the coal commission conclude that it would be for the best interest of the coal industry as a whole that no more mines be opened on that railroad, it can simply refuse a permit for new mines and thus, in a supposed effort to benefit the coal industry, it may destroy the value of investments aggregating hundreds of millions of dollars in coal railroads, coal fields, and towns dependent upon coal operations. Indeed, the whole theory of this proposed legislation is a disregard of individual rights in a wholesale way. Upon the assumption that this bureau at Washington will be wise enough and honest enough to justify intrusting to it the making or breaking of a vast number of our citizens in respect of their private properties, worth billions of dollars, the alleged benefits of such legislation are still infinitesimal in comparison with the possibilities of evils of all sorts."

House Committee Divided on "Flexible" 15a

The House committee on interstate and foreign commerce has been working in executive session for nearly two weeks on the bills to revise Section 15a of the interstate commerce act but had announced no results up to the time of going to press. It is understood that there has been a division of opinion among the members as to just how flexible a "flexible" rule of rate-making ought to be. Some desire that the law shall merely prescribe what the Interstate Commerce Commission shall take into consideration in the exercise of its rate-making powers while others are insistent upon including the language proposed by Commissioner Eastman and strongly urged by representatives of the railways and other interests stating that having considered them it "shall be the duty" of the commission to make rates in an effort to bring about the desired result of sufficient revenues for the maintenance of adequate transportation. A sub-committee consisting of Chairman Rayburn and Representatives Parker, Huddleston, Lea and Hoch has been wrestling with this question and reported to the full committee on Tuesday, after which the full committee again took up the discussion of the bill.

Most of those interested in the proposed legislation have already given up hope of any final action on the bill at this session of Congress, as Congress is already far behind with its work on the appropriation bills and has become involved in such complicated controversial questions as the tax and budget problems, while comparatively few of the members know what is involved in the railroad bill.

President Wants Regulation of Inland Water Rates

Creation of a tribunal to regulate rates for inland waterways and intercoastal transportation was again advocated by President Hoover in a statement to the press on April 1 in which he said he would not fill for the present the vacancy on the Shipping Board created by the recent death of Commissioner E. C. Plummer, in the hope that Congress will pass the legislation necessary to reorganize the whole of the government's merchant marine activities at this session. He said the Shipping Board ought to be abolished but that "there is a function in regulation of shipping rates which should be extended to intercoastal rates and to inland water rates, which is a much needed function for the development of shipping, and which could be administered at a comparatively small sum per annum by a new organism comprised of the present members of the Shipping Board, for their experience is most valuable."

Proposed legislation to give the President authority to reorganize the federal departments and offices has so far made little progress in Congress.

Trunk Lines to Cancel Extra Fares April 24

(Continued from page 615)

While some loss in revenue is anticipated through the virtual elimination of extra fares there will undoubtedly be offsetting savings in operating expenses on the New York Central and the Pennsylvania. The former, for example, will eliminate the Advance Twentieth Century Limited, now leaving 45 minutes in advance of the regular Century, and will add extra sections to the Century as needed. Also both roads are expected to consolidate certain other trains wherever this can be effected without sacrifice of convenience to patrons. Under the new schedule, on Daylight Saving Time, the Century will depart from New York at 4 p.m., arriving in Chicago at 9 a.m. the following day; the Broadway will leave New York at 4:30 p.m. and arrive in Chicago at 9:30 the next morning. From Chicago the Broadway will depart at 2 p.m., arriving in New York at 9 o'clock the next morning and the Century will leave Chicago at 2:30 p.m. reaching New York at 9:30 a.m. the next day. The schedule of the Boston section of the Century will be revised accordingly. Revised and accelerated schedules of the other trains are now being prepared.

The present readjustments follow the proposed report of Examiners A. S. Worthington and M. L. Boat in connection with the Interstate Commerce Commission's investigation of extra fares. This report, an abstract of which appeared in the *Railway Age* of February 20, recommended findings by the commission that the charging of extra fares for combination service, i.e. service which requires transfer en route is not justified, and also that the practice of charging extra fares for through service is unreasonable "except when a definitely superior service, namely, such a service as is not generally furnished at the regular fare, is provided, and when the number of such extra fare services does not exceed 33⅓ per cent of the total number of through services on trains carrying equipment of the standard generally in use and operated at equally convenient hours over the same routes between the same points."

A finding was also recommended that relief from the aggregate-of-intermediates provision of Section 4 of the Interstate Commerce Act has not been justified and that the applications of the roads for such relief should be denied.

Further the report stated that "While

the proposed finding does not specifically condemn the 28-hr. 'standard time basis' employed in fixing extra fares between New York and Chicago, this basis is admittedly arbitrary, of somewhat ancient vintage, and not in keeping with the present average running time of trains between these cities, two-thirds of which have schedules of less than 28-hours and over half of which have schedules of less than 25 hours."

The New York Central in connection with the change completed on April 6 what it called "the most drastic revision of its passenger schedules in years." The new schedules, effective April 24, with the advent of daylight saving time, call for nine 21-hour trains between New York and Chicago, all of which will carry coaches. Westbound, these trains will consist of the Wolverine, Commodore Vanderbilt, North Shore Limited, Cleveland Limited and the Chicagoan and eastbound, the Wolverine, Fifth Avenue Special, Commodore Vanderbilt and North Shore Limited. These trains will leave at convenient hours throughout the day and evening, from 8:30 in the morning until midnight. In addition, there will be three other fast trains from New York to Chicago, the Iroquois, the Mohawk and the Lake Shore Limited, and three from Chicago to New York, the Niagara, Lake Shore Limited and the New York Special. The times of these trains will vary from 21 hours, 25 minutes to 23 hours, 15 minutes.

The new schedules will go into effect the same day as the Twentieth Century Limited's running time from New York to Chicago is reduced from 20 hours to 18 hours. This will make the average speed of the Century 53.4 miles per hour, elapsed time, including stops.

"The new arrangement," the statement on the revised schedules points out "in addition to providing better service at less cost to the public, will result in the saving of 1,532,000 passenger train-miles per year and 14,400,000 Pullman car-miles per year, it is estimated."

Wage Statistics for January

The total compensation paid to railway employees in January was $149,146,229, a decrease of 21.76 per cent as compared with that for January, 1931, according to the Interstate Commerce Commission's monthly statement of wage statistics. The number of employees, 1,108,691, showed a decrease of 16.88 per cent.

F.T.C. Order Against Mechanical Manufacturing Company

The Mechanical Manufacturing Company, Chicago, has been ordered by the Federal Trade Commission to cease and desist the use of the volume of the freight traffic of Swift & Co., or its subsidiary corporations, in the solicitation of railway equipment business from railway companies. Such solicitation was carried on through two individuals who were not only financially interested in the Mechanical company but held key positions in the freight traffic department of Swift & Co. They used these positions to obtain business in railway equipment for the Mechanical company.

These practices are held by the commission to "unduly tend to suppress competition" between the Mechanical company and competing equipment manufacturers in that the company, in cooperation with two individuals, "have created and taken advantage of a competitive weapon, oppressive and coercive in nature, which prevents the customers * * from exercising their free will and judgment in determining which device is the most efficient * * *."

The following specific business methods are to be discontinued: Promises and assurances of freight traffic or of an increased volume of freight traffic to be shipped over lines of railway companies by Swift & Co., or its subsidiary corporations. Threats of withdrawal of freight traffic from the lines of railway companies by Swift & Co., or its subsidiary corporations, if such railway companies would not purchase draft gears or other railway equipment manufactured or sold by Mechanical Manufacturing Co.

R. O'Hara, manager, and W. A. Mayfield, assistant manager of the transportation department of Swift & Co., Chicago, both of whom are in direct charge of traffic negotiations with railroad companies and control the routing of freight cars carrying Swift products, are ordered to cease cooperating with and assisting the Mechanical Manufacturing Company, in selling railway equipment, including draft gears, bumping posts or centering devices, to railway companies. They are to stop carrying on these practices through use of their official positions in Swift & Co. to induce and compel officials of railway companies to give undue preference to railway equipment manufactured and sold by Mechanical Manufacturing Company, or affiliated corporations selling railway equipment, by means of promises of freight traffic from Swift & Co. or subsidiary corporations, and threats of withdrawal of such traffic if such railway companies fail to buy Mechanical Manufacturing or subsidiary companies' equipment.

O'Hara and Mayfield interviewed railway officials and wrote them letters on Swift & Co. stationery, signing their names as Swift transportation officials.

Last October, the commission made public its order against Waugh Equipment Co., one-time competitor of Mechanical, and traffic officials of Armour & Co., packers, regarding sales of equipment to railways much in the manner of the present case against Mechanical and the Swift traffic officers. But the Swift interests as well as Armour now own stock in Waugh Equipment Company as a result of a transaction in December, 1929, when Waugh issued 1,666 shares of common stock to the Swift estate in exchange for assignment to Waugh of a license to manufacture a centering device owned by Mechanical. Since that time Mechanical has not accepted orders from railway companies for draft gears and centering devices, but has continued some business in bumping posts.

Because of this relation between Mechanical and Waugh, the Commission's present order is also expected to prevent O'Hara and Mayfield, representing the Swift interests, from promoting business for Waugh Equipment Company as well as for Mechanical Manufacturing Company.

Cotton Belt Cleared of Rebating Charges and Trucking Cases

The St. Louis Southwestern was acquitted in the United States district court for the western district of Tennessee at Memphis, Tenn., on March 15, of charges contained in two indictments, that the railroad had violated Interstate Commerce Commission regulations with its door-to-door freight system. Fines totaling $400,000 on 20 counts could have been assessed against the defendant, the minimum fine being $20,000, or $10,000 for each offense.

One indictment was for alleged rebating and the other charged departure from published tariff rates. Trial Judge Harry B. Anderson held that the service was performed by the Southwestern Transportation Company, a subsidiary of the railroad, over which the Interstate Commerce Commission has no jurisdiction. The court held that the subsidiary was a legally organized corporation engaged in legitimate business in the transportation of persons and property, and was organized for the purpose of meeting the demands of the public and not merely as a screen to permit the railroad to violate the law. F. H. Millard, comptroller of the Cotton Belt, was the principal witness for the railroad.

The rebate charge was based on a door-to-door freight arrangement established by the Cotton Belt to encourage trade. Under this arrangement the freight was transported by truck from the shipper to the railroad, by rail to its destination and delivered by truck to the consignee at the regular freight rates and there was no charge for trucking. When the Cotton Belt's auxiliary trucking system was used, no trucking charges were assessed. When private trucks were used to haul the freight between railroad stations and the shipper or consignee, the trucking charge was paid by the railroad, sometimes to the truck company and sometimes to the shipper.

It was the latter phase of the operation that was alleged to constitute a rebate. Ten of the counts also charged that the Cotton Belt had failed to include its trucking system and its charges in the published schedules of rates required by the Interstate Commerce Commission.

Under the decision the company may continue to utilize its truck-rail system. The railroad agreed to publish details of this system and its rates as desired by the commission.

One Cent A Mile

Railroads operating west and southwest of Chicago will offer cent-a-mile passenger rates from all points on their lines on April 22, 23 and 24, with a return limit to include Monday, May 2. This is the second attempt to be made by these roads to test the effect of one cent-a-mile rates as a means of stimulating travel, the first attempt having been made on April 24 and 25 last year.

Equipment and Supplies

IRON AND STEEL

THE NEW YORK, NEW HAVEN & HARTFORD placed orders with the Carnegie Steel Company and the Bethlehem Steel Company for 10,000 tons of 130-lb. rail.

THE DELAWARE, LACKAWANNA & WESTERN is inquiring for 290 tons of structural steel and grillages for use in connection with grade crossing elimination work at Elmira, N. Y.

SIGNALING

THE GRAND TRUNK has ordered from the Union Switch & Signal Company material for the installation of automatic block signals on its line from Milwaukee Junction, Mich., near Detroit, to Royal Oak, Mich., eight miles. Light signals will be used.

MISCELLANEOUS

Baltimore & Ohio Increases Shop Hours

About 6,900 shop employees of the Baltimore & Ohio in the maintenance of equipment department who have been working on a four-day week basis for the past five months, were on April 1, placed on a five-day week.

N. Y. C. Reopens Additional Shop

The Ashtabula Harbor (Ohio) car repair shops of the New York Central which are maintained to make light repairs, were reopened on April 4, when 49 men were recalled to work. This is in addition to the recall of some 7,000 employees of car and locomotive shops recently reopened at other points on the New York Central system, as reported in the *Railway Age* of April 2, page 576.

New Haven Outlines Its Improvement Program

The New York, New Haven & Hartford has placed orders with the Carnegie and Bethlehem Steel companies for 10,000 tons of 130-lb. steel rails, to replace 107-lb. rail in main line track. This is part of a program to eventually install the heavier rail in service on the entire main line between New York and Boston.

At the present time the road has 234 miles of track laid with the 130-lb. rail. The new rails just ordered will be in 39-ft. lengths, which the New Haven adopted several years ago; this is six feet longer than the rails which previously had been standard for a great many years.

The gradual replacement of the 107-lb. rail with the heavier 130-lb. rail is one phase of the general program which the New Haven has been carrying out during the past few years. Other phases have included the purchase of more powerful locomotives, both steam and electric, purchase of roller-bearing-equipped de luxe coaches for passenger trains, third-tracking portions of main line, further extension of automatic signaling, strengthening of bridges, and modernization of freight terminals.

Supply Trade

The Dearborn Chemical Company, Chicago, has expanded its operations through the manufacture and sale of a new product known as Plumite, a chemical solvent for use in clearing clogged plumbing fixtures and soil pipes. It will be marketed chiefly through the retail grocery field.

Robert H. Binkerd is now vice-president and director of sales of the **Baldwin Locomotive Works,** Eddystone, Pa., having been elected a vice-president in addition to his former duties of director of sales. A portrait of Mr. Binkerd and a sketch of his career were published in the *Railway Age* of November 7, 1931.

H. C. Darby has been appointed district sales manager for the **Inland Steel Company, Chicago,** with headquarters at the Kansas City, Mo., office. Mr. Darby has been a member of the sales force of that office since November, 1926; he succeeds the late Orville P. Blake. **Mark Hill** has been appointed salesman in the Kansas City office.

John C. Witherspoon, a director of **Berry Brothers,** Detroit, Mich., has been elected president, **W. R. Carnegie,** president and general manager, having retired. **Thurlow J. Campbell,** assistant general manager has been elected vice-president and general manager. **C. L. Forgey,** advertising manager has been appointed also general sales manager succeeding **Walter Bartz,** who has been appointed production manager, all with headquarters at Detroit.

Pullman, Inc., Annual Report

The annual report of Pullman, Inc., for the year ending December 31, 1931 shows total earnings from all sources of $2,378,632, as compared with $16,943,081 in 1930. Dividends paid by Pullman, Inc. amounted to $14,528,497, as compared with $14,996,139 in 1930. Current assets totaled $82,393,850, while current liabilities totaled $14,058,044. After dividends, the surplus was decreased by $12,149,865, in contrast to the previous year when the balance to surplus was $1,943,215. The consolidated income account, as of December 31, 1931, and comparison with 1930, follows:

	1931	1930
Earnings:		
From carrier business of The Pullman Company after deducting all expenses incident to operations	$13,783,363	$16,367,206
Less: Charges and allowances for depreciation	10,519,744	10,676,129
	$3,263,619	$5,691,077
From all manufacturing properties and Pullman Railroad, after deducting all expenses incident to operations	*$440,217**	$12,419,606
Less: Charges and allowances for depreciation	2,585,193	2,373,496
	*$3,025,410**	$10,046,110†
From investments, etc.	2,526,522	3,324,424
Total earnings from all sources	$2,764,731	$19,061,611
Less: Reserve for federal income tax	386,099	2,118,529
Balance of earnings	$2,378,632	$16,943,082
Dividends Paid:		
By Pullman Incorporated	$14,528,497	$14,996,139
Proportion of dividends of subsidiary, The Pullman Company, paid to minority stockholders.	.....	3,728
	$14,528,497	$14,999,867
Balance to Surplus	*$12,149,865**	$1,943,215

* Note: Figures in italics denote deficit.
† 1930 figures include 10 months' earnings from Osgood Bradley Car Corporation and Standard Steel Car Corporation and subsidiaries.

David A. Crawford, president, in his letter to stockholders, says in part: "During 1931 there were no important additions to manufacturing plants. Two new cars were added to the equipment list of the carrier division and 379 cars were retired or sold, of which 351 were of obsolete types, disposed of in continuation of the procedure mentioned in the 1930 report and resulting in an adjustment of $1,277,098 necessary to write out of valuation surplus set up in formation of Pullman, Inc. April 30, 1927, the value of the unrealized useful life then estimated for

The Pullman Company—Traffic and Operating Statistics
Comparative Statement for Years Ended December 31

Item	1927	1928	1929	1930	1931
Cars Owned	9,068	9,248	9,529	9,860	9,483
Cars Operated	8,689	8,631	8,842	8,559	7,402
Car Miles	1,140,476,049	1,153,889,647	1,206,767,059	1,183,668,557	1,025,164,501
Revenue Passengers:					
Berth	22,042,093	21,310,891	21,008,719	18,498,844	14,583,183
Seat	13,155,085	12,613,029	12,425,549	10,861,342	8,401,738
	35,197,178	33,923,920	33,434,268	29,360,186	22,984,921
Revenue Passenger Miles	14,096,775,086	13,937,849,095	14,058,525,111	12,515,414,775	9,891,910,222
Revenue from Cars	$82,250,940	$82,249,127	$83,840,812	$77,666,074	$63,683,507
Expenses	$71,891,743	$71,311,068	$74,655,613	$72,729,214	$60,773,171
Net Revenue from Cars	$10,359,197	$10,938,059	$9,185,199	$4,936,860	$2,910,336
Traffic Averages:					
Average Revenue per Car Operated	$9,466.64	$9,529.50	$9,482.32	$9,074.31	$8,603.44
Average Revenue per Passenger	$2.34	$2.42	$2.51	$2.65	$2.77
Average Net Revenue per Passenger	$0.29	$0.32	$0.27	$0.17	$0.13
Average Net Revenue per Car per Day	$3.27	$3.46	$2.85	$1.58	$1.08
Average Mileage per Car Operated	131,263	133,691	136,484	138,297	138,496
Average Journey per Passenger (Miles)	401	411	420	426	430
Average Miles per Car per Day	360	365	374	379	379
Average Loading per Car (Passengers)	12.36	12.08	11.65	10.57	9.65

the cars now retired. There has been no change in the policy of adequate provision for depreciation of physical properties."

General Electric Company

The fortieth annual report of General Electric Company for the year 1931 shows profit available for dividends amounting to $40,956,996, equivalent, after dividends on the special stock, to $1.33 a share on the 28,845,927 shares of no par value common stock, compared with $57,490,915 in 1930, or $1.90 a share on the same number of shares. Dividends of 60 cents per share on special stock and $1.60 per share on common stock amounted to $48,725,262 for 1931, resulting in a deficit of $7,768,266, which was taken from surplus, leaving a balance in surplus on December 31, 1931, of $172,198,374.

Orders received during 1931 amounted to $252,021,496, compared with $341,820,312 in 1930, a decrease of 26 per cent, and unfilled orders at the end of the year totalled $49,308,000, compared with $56,062,000 at the close of 1930, a decrease of 12 per cent.

Sales billed for 1931 were $263,275,255, compared with $376,167,428 in 1930, a decrease of 30 per cent. Net income from sales in 1931 amounted to $28,390,883, which, compared with $40,450,261 in 1930, shows a decrease of 29 per cent.

A comparison of income and expenses for 1931 with the previous year follows:

	1931	1930
Net sales billed	$263,275,255	$376,167,428
Less: Costs, expenses, and all charges except interest	234,884,373	335,717,167
Net income from sales	28,390,883	40,450,261
Income from other sources:		
Associated companies and miscellaneous securities	8,657,111	13,453,654
Interest and discount	3,819,280	3,258,499
U. S. Government and other marketable securities	21,533	1,757,715
Royalties and sundry revenue	501,422	1,605,334
	$12,999,347	$20,075,203
Total income	$41,390,229	$60,525,464
Less: Interest payments	433,234	313,079
Addition to general reserve	.....	2,721,470
Profit available for dividends	40,956,996	57,490,915
Less: 6% cash dividends on special stock	2,575,005	2,574,953
Profit available for dividends on common stock	$38,381,990	$54,915,962
Less: Cash dividends on common stock	46,150,257	46,150,204
Deficit (1931) and surplus (1930) for the year	$7,768,266	$8,765,759

OBITUARY

Eben M. Byers, chairman of the board of the A. M. Byers Company, Pittsburgh, Pa., died on March 31 at the Doctors' Hospital, New York, at the age of 52 years.

Cornelius M. Walsh, president and general manager of the Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, died at his home in that city on March 25 at the age of 68 years. Mr. Walsh was born at Cuyahoga Falls and spent his entire life there. He attended schools of his native town and began his business career as an employee of the lumber and planing mill establishment of Howe & Company. Mr. Walsh later bought the business and operated under the name of the Walsh Lumber Company of which he was president. He also was president of the Walsh Paper Company and Walsh Milling Company.

Samuel M. Curwen, president of the J. G. Brill Company since 1912, who died on March 29, was born on July 29, 1859, at Philadelphia, Pa., where he received his early education and was graduated from the Episcopal Academy in 1878. Mr. Curwen went to the Brill organization in 1879, and after an apprenticeship course in the Brill shops served in the engineering department, where he learned the practical fundamentals of car building and later was made head of the engineering department. Mr. Curwen subsequently served as a salesman and then held various executive positions including those of assistant general manager and general manager until he was elected second vice-president in 1903. He was advanced to first vice-president in 1908, and since May, 1912, was president of the company. Mr. Curwen, as a practical car

Samuel M. Curwen

and truck designer and builder, had contributed many valuable patents to the development of his company's product. In addition to serving as president of the J. G. Brill Company, he was president of its subsidiary companies of Missouri, of Massachusetts and of Ohio, and chairman of the board and a director of the Brill Corporation, New York, and a director of the American Car & Foundry Motors Company. He served as president, a director and chairman of the executive committee of the Electric Railway Equipment Securities Corporation, and was in addition a director of a large number of industrial and banking companies and of the American Railway Car Institute and the Reading Company. He was affiliated with a number of societies and organizations, including the American Electric Railway Association, the Engineer's Club of New York and the New York Railroad Club.

Construction

CINCINNATI UNION TERMINAL.—Bids will be closed on April 12 for the installation of the underground drainage and air and water piping systems in this company's coach yard at Cincinnati, Ohio.

Financial

ATCHISON TOPEKA & SANTA FE.—*Reduces Dividend.*—The directors of this company have declared a quarterly dividend of $1 a share on its common stock. In January a reduction was made to $1.50. The stock formerly was on a $10 annual basis.

ATLANTIC COAST LINE.—*Accounting for A. B. & C.*—The Interstate Commerce Commission has instituted an investigation of the methods used by the Atlantic Coast line in accounting for its investment in the capital stock of the Atlanta, Birmingham & Coast and also of the methods used by the A. B. & C. in accounting for its liability for capital stock issued by it and its investment in road and equipment.

BALTIMORE & OHIO.—*R. F. C. Loan.*—The Interstate Commerce Commission on April 1 announced its report dated March 30 approving a loan of $7,000,000 to this company from the Reconstruction Finance Corporation to meet immediate requirements, on its application for $55,000,000 for the year, but deferred consideration of that part of the loan requested to meet bank loans "pending further negotiations on the part of the applicant looking toward additional private financing." The company has $1,000,000 of bank loans due April 26 to the Central Hanover Trust Company, the National City Bank, and the First National Bank, of Baltimore, and also $8,000,000 of 4 per cent short-term loans due May 25, held by Kuhn, Loeb & Co., Speyer & Co., and others. It also has $35,000,000 of 4 per cent gold notes coming due August 10. Consideration of the amounts needed after May 24 was deferred "pending a more precise determination of the applicant's necessities for the later period, after the actual results of operations for intervening months are known." As security for the $7,000,000 loan the commission required the pledge of $15,000,000 of the applicant's refunding and general mortgage 6 per cent bonds. According to the report "the banks are said to be insisting upon payment when the loans are due." The purposes for which the immediate loan was approved include $2,000,000 for unpaid vouchers, $2,000,000 for restoration of temporary borrowings from relief, saving, and insurance funds, $800,000 for principal of equipment trust obligations, and $796,000 for 1930 taxes in Chicago and Cook county, Ill. The B. & O. had estimated that it would earn $7,063,628 for the year above its interest requirements. It was stated that a separate ap-

plication for a loan for the Alton was contemplated.

BANGOR & AROOSTOOK.—*Tentative Recapture Report.*—The Interstate Commerce Commission has issued a tentative recapture report finding that this company had earned $347,237 in excess of 6 per cent on its valuation for the years 1926 and 1927 and directing it to pay half that amount by May 10 unless a protest is filed.

BESSEMER & LAKE ERIE.—*Annual Report.*—The 1931 annual report of this company shows net income after interest and other charges of $958,362, as compared with net income of $4,849,121 in 1930. Selected items from the Income Statement follow:

	1931	1930	Increase or Decrease
Average Mileage Operated	227.21	227.75	.54
RAILWAY OPERATING REVENUES	8,673,828	14,712,458	—6,038,630
Maintenance of way	1,161,167	1,290,677	— 129,510
Maintenance of equipment	2,424,486	3,995,680	—1,571,195
Transportation	2,381,712	3,350,337	— 968,625
TOTAL OPERATING EXPENSES	6,593,983	9,295,346	—2,701,362
NET REVENUE FROM OPERATIONS	2,079,845	5,417,112	—3,337,268
Railway tax accruals (cr)	337,928	676,678	—1,014,606
Railway operating income	2,417,333	4,740,380	—2,323,047
Hire of freight cars—Dr.	80,671	51,762	+ 28,910
Joint facility rents	22,288	31,794	— 9,506
Non-operating income	253,675	436,934	— 183,259
GROSS INCOME	2,671,008	5,177,315	—2,506,306
Rent for leased roads	5,972	5,964	+ 8
Interest on funded debt	607,271	643,671	— 36,400
TOTAL DEDUCTIONS FROM GROSS INCOME	1,712,646	328,194	+1,384,452
NET INCOME	958,362	4,849,121	—3,890,759
Disposition of net income: Dividend appropriations of Income	419,976	419,976	.....
Total appropriations of Income	419,976	419,976	.....
Income Balance transferred to Profit and Loss	538,386	4,429,145	—3,890,759

CENTRAL OF GEORGIA.—*Annual Report.*—The 1931 annual report of this company shows net deficit after interest and other charges of $591,737, as compared with net income of $1,407,764 in 1930. Selected Items from the Income Statement follow:

	1931	1930	Increase or Decrease
Average Mileage Operated	1944.40	1944.40	
RAILWAY OPERATING REVENUES	17,076,488	21,082,429	—4,005,942
Maintenance of way	1,758,313	2,192,546	— 434,233
Maintenance of equipment	3,015,092	3,504,784	— 489,692
Transportation	7,378,760	8,505,211	—1,126,451
TOTAL OPERATING EXPENSES	13,981,681	16,123,140	—2,141,460
NET REVENUE FROM OPERATIONS	3,094,807	4,959,289	—1,864,782
Railway tax accruals	1,342,074	1,322,863	+ 19,212
Railway operating income	1,745,957	3,628,263	—1,882,306
Hire of freight cars—Cr.	39,443	228,248	— 188,805
Joint facility rents	149,419	150,835	— 1,416
NET RAILWAY OPERATING INCOME	1,581,563	3,668,811	—2,087,248
Non-operating Income	1,424,227	1,344,079	+ 80,148
GROSS INCOME	3,005,790	5,012,890	—2,007,100
Rent for leased roads	343,603	343,791	— 188
Interest on funded debt	2,938,256	2,971,179	— 32,922
TOTAL DEDUCTIONS FROM GROSS INCOME	3,597,527	3,605,126	— 7,599
NET INCOME	*591,737	1,407,764	—1,999,501

* Deficit.

CHESAPEAKE & OHIO.—*Annual Report.*—The annual report of this company for 1931 shows net income after interest and other charges of $26,696,484, as compared with net income of $34,107,017 in 1930. Selected items from the Income Statement follow:

	1931	1930	Increase or Decrease
RAILWAY OPERATING REVENUES	119,552,170	137,230,375	—17,678,205
Maintenance of way	15,397,178	18,592,520	— 3,195,342
Maintenance of equipment	22,704,390	26,836,471	— 4,132,080
Transportation	30,172,791	34,977,342	— 4,804,551
TOTAL OPERATING EXPENSES	74,497,861	86,966,517	—12,468,656
Operating ratio	62.3	63.4	— 1.1
NET REVENUE FROM OPERATIONS	45,054,309	50,263,858	— 5,209,548
Railway tax accruals	9,624,880	10,302,194	— 677,315
Railway operating income	35,417,455	39,952,337	— 4,534,882
Equipment rents—Net	1,109,773	1,702,364	— 592,591
Joint facility rents—Net	1,197,285	1,131,474	— 65,811
NET RAILWAY OPERATING INCOME	35,329,944	40,523,227	— 5,193,284
GROSS INCOME	37,598,665	44,964,265	— 7,365,600
Rent for leased roads	53,226	69,902	— 16,675
TOTAL DEDUCTIONS FROM GROSS INCOME	10,902,182	10,857,249	+ 44,933
NET INCOME	26,696,484	34,107,017	— 7,410,533

CHICAGO, HARVARD & GENEVA LAKE.—*Abandonment.*—This company and its receiver have been authorized by the Interstate Commerce Commission to abandon as to interstate and foreign commerce its entire line extending from Walworth, Wis., to Fontana, 2.5 miles.

DETROIT & TOLEDO SHORE LINE.—*Securities.*—The Interstate Commerce Commission has authorized this company to issue $1,572,000 of common stock to be delivered pro rata to its stockholders as a dividend and to procure the authentication and delivery of $1,000,000 of general and refunding mortgage series A bonds in partial reimbursement of capital expenditures.

FLORIDA EAST COAST.—*R. F. C. Loan.*—The Interstate Commerce Commission on March 30 approved the loan of $918,375 asked by the receivers from the Reconstruction Finance Corporation for the purpose of meeting maturities of principal and interest on equipment trust obligations.

FONDA, JOHNSTOWN & GLOVERSVILLE.—*R. F. C. Loan.*—This company has amended its application for a loan from the Reconstruction Finance Corporation reducing the amount asked from $315,500 to $179,250.

FREDERICKSBURG & NORTHERN.—*R. F. C. Loan.*—This company has applied to the Interstate Commerce Commission and the Reconstruction Finance Corporation for a loan of $15,000.

GREAT NORTHERN.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a portion of a branch line extending from Giffen Junction, Mont., southwesterly to Stockett, 1.6 miles.

GULF, MOBILE & NORTHERN.—*R. F. C. Loan.*—The Interstate Commerce Commission on March 30 approved a loan of $260,000 from the Reconstruction Finance Corporation to meet semi-annual interest requirements due April 1, without prejudice to the consideration of the balance of $510,000 asked by the company to meet requirements later in the year.

JEFFERSON & NORTHWESTERN.—*R. F. C. Loan.*—This company has applied to the Interstate Commerce Commission and the Reconstruction Finance Corporation for a loan of $40,000 to meet current expenses, offering as security a first lien on all its property.

LEHIGH VALLEY.—*R. F. C. Loan.*—This company has applied to the Interstate Commerce Commission and the Reconstruction Finance Corporation for a loan of $1,500,000 to pay interest due May 1 on its general consolidated mortgage bonds.

MCCLOUD RIVER.—*Tentative Recapture Report.*—The Interstate Commerce Commission has issued a tentative recapture report finding that this company earned $157,153 in excess of 6 per cent on its value for the years 1922 to 1926 and directing it to pay half that amount by May 10, unless a protest is filed.

MINNEAPOLIS & ST. LOUIS.—*R. F. C. Loan.*—W. H. Bremner, receiver, has applied to the Interstate Commerce Commission and the Reconstruction Finance Corporation for a loan of $3,898,629, in-

cluding $1,185,000 to pay receivers' certificates, $950,000 to pay first mortgage bonds, and $1,748,629 to pay principal of preferred claims.

NEW YORK, ONTARIO & WESTERN.—*Annual Report.*—The annual report of this company for 1931 shows net income after interest and other charges of $669,243, as compared with net deficit of $260,459 in 1930. Selected items from the Income Statement follow:

	1931	Increase or Decrease
RAILWAY OPERATING REVENUES	11,342,979	+ 925,591
Maintenance of way	1,278,916	— 51,586
Maintenance of equipment	1,948,725	— 109,504
Transportation	4,486,496	+ 7,551
TOTAL OPERATING EXPENSES	8,250,514	— 214,206
Operating ratio	72.74	— 8.52
NET REVENUE FROM OPERATIONS	3,092,465	+1,139,857
Railway tax accruals	462,667	— 26,705
Railway operating income	2,627,575	+1,165,185
Hire of freight cars—Dr.	757,634	+ 296,400
NET RAILWAY OPERATING INCOME	1,769,353	+ 886,086
Non-operating income	448,503	+ 56,812
GROSS INCOME	2,217,857	— 942,899
Rent for leased roads	227,875	.....
Interest on funded debt	1,182,762	— 3,300
TOTAL DEDUCTIONS FROM GROSS INCOME	1,548,614	+ 13,196
NET INCOME	669,243	+ 929,703

PEORIA & PEKIN UNION.—*Tentative Recapture Report.*—The Interstate Commerce Commission has issued a tentative recapture report finding that this company earned $1,042,013 in excess of 6 per cent on its value in the years 1922 to 1927 accompanied by an order directing it to pay half that amount by May 10 unless a protest is filed.

ST. LOUIS-SAN FRANCISCO.—*R. F. C. Loan.*—This company has filed with the Interstate Commerce Commission and the Reconstruction Finance Corporation a supplemental application for a loan of $12,717,814 covering its estimated requirements for the year, in place of its original application for $17,998,542 of which $2,805,175 has already been loaned. The amount asked includes $1,620,777 desired by May 1 to pay taxes which have been due since December 31 in Alabama, Kansas, and Missouri, and $5,974,722 to meet bank loans from six New York and two St. Louis banks, most of them due July 1. The company furnished an estimate of its year's operations showing a net loss of $10,392,101 for the year.

Average Prices of Stocks and of Bonds

	Apr. 5	Last week	Last year
Average price of 20 representative railway stocks	21.99	26.45	81.34
Average price of 20 representative railway bonds	61.98	66.48	91.93

Dividends Declared

Atchison, Topeka & Santa Fe.—Common, $1, payable June 1 to holders of record May 6.

Kansas City Southern.—Preferred, 1 per cent, payable April 15, to holders of record March 31.

Railway Officers

EXECUTIVE

F. Barron Grier, vice-president and general counsel of the Atlantic Coast Line, resigned from active service on April 1, but will continue as advisory counsel.

FINANCIAL, LEGAL AND ACCOUNTING

A. G. Armstrong, assistant comptroller of the Illinois Terminal Railroad System, resigned effective April 1, in order to enter private practice as a transportation consultant at Washington, D. C.

OPERATING

J. E. Schwender has been appointed superintendent of the Northern division of the Michigan Central, with headquarters at Bay City, Mich., and **F. McElroy** has been appointed superintendent of the Canada division, with headquarters at St. Thomas, Ont.

R. E. Titus has been appointed trainmaster of the Third and Fourth subdivisions and branches of the Idaho division of the Oregon Short Line, with headquarters at Nampa, Idaho, where he replaces **R. E. Brooks,** assistant superintendent, who has resigned. The jurisdiction of **J. E. Davis,** trainmaster on the Utah, division, with headquarters at Salt Lake City, Utah, has been extended over the entire division, displacing **F. W. Rothas,** who has been transferred to the First and Second subdivisions and branches of the Idaho division, with headquarters at Montpelier, Idaho.

A. R. Taylor, assistant general superintendent of transportation on the Missouri Pacific, with headquarters at St. Louis, Mo., has been appointed superintendent of the Memphis division, with headquarters at Wynne, Ark., succeeding **H. Schantl,** who has been appointed to the newly-created position of master of trains and track of the Missouri-Illinois west of the Mississippi river including the river transfer, with headquarters at Bonne Terre, Mo. **E. L. Kimmel,** trainmaster of the Missouri-Illinois, with headquarters at Bonne Terre, has been assigned to other duties and the position of trainmaster has been abolished.

John T. Ellett, who was recently appointed superintendent of the Norfolk division of the Norfolk & Western, was born at Burkeville, Va., on August 30, 1878. Mr. Ellett has been connected with the Norfolk & Western for almost 42 years, commencing as a messenger boy at Lynchburg, Va. On May 3, 1893, he was advanced to the position of operator, and on October 1, 1899, he became a dispatcher. In May, 1902, he was promoted to night chief dispatcher and five months later became chief dispatcher. In January, 1912, Mr. Ellett was given the position of assistant trainmaster of the Norfolk division, and in September, 1918, he became trainmaster of that division, which position he held until his recent promotion to superintendent, same division.

John T. Ellett

TRAFFIC

J. F. Minter has been appointed general agent of the Virginian, with headquarters at Pittsburgh, Pa., succeeding **W. H. Casson,** resigned.

Thomas Byers has been appointed general agent of the Delaware & Hudson, with headquarters at Pittsburgh, Pa., succeeding **H. W. Haas,** deceased.

Effective April 1, the position of general agent of the Virginian at Chicago was abolished. **R. A. Yelton** has been appointed general western agent, and **S. C. Forman** commercial agent.

Charles M. Gosnell has been appointed assistant general coal freight agent of the Baltimore & Ohio, with headquarters at Baltimore. Md., and **J. A. Scheuerman** has been appointed to a similar position at Cleveland, Ohio. **G. C. Bauer** has been appointed to succeed Mr. Scheuerman as coal freight agent at Cincinnati, Ohio.

Ralph P. Bird, eastern freight agent for the Gulf, Colorado & Santa Fe, with headquarters at New York, has been appointed general agent, freight department, for the Atchison, Topeka & Santa Fe, at the same point, to replace **C. H. Morehouse,** deceased. The position of eastern freight agent for the G. C. & S. F., has been abolished. **D. L. Thornbury** has been appointed general agent for the Santa Fe at Philadelphia, to succeed **E. M. Troxell,** also deceased.

Paul D. Freer, who has been appointed freight traffic manager of the Southwest region of the Baltimore & Ohio, with headquarters at Cincinnati, Ohio, as noted in the *Railway Age* of March 12,

has been engaged in railway traffic work for 41 years. He was born at Newark, Ohio, and after a public school education he entered railway service on April 1, 1891, as a stenographer on the Cincinnati, New Orleans & Texas Pacific. A year later he left this road to join the Baltimore & Ohio as a stenographer in

Paul D. Freer

the general freight department at Cincinnati. He served at this point and at St. Louis, Mo., as a tracer clerk, claim clerk, secretary to the general freight agent, rate clerk and chief rate clerk, until January 13, 1913, when he was appointed division freight agent on the Cincinnati, Hamilton & Dayton (part of the Baltimore & Ohio), with headquarters at Dayton, Ohio. On October 15, 1915, Mr. Freer was appointed to the same position on the C. H. & D. and the Baltimore & Ohio Southwestern (also part of the B. & O.), with headquarters at Chillicothe, Ohio, being transferred to Cincinnati on December 1, 1916, He was further advanced to assistant general freight agent on the B. & O., on February 1, 1919, with headquarters at Cincinnati, being promoted to general freight agent at that point a year later. Mr. Freer's further promotion to freight traffic manager became effective on March 1.

ENGINEERING AND SIGNALING

W. H. Kirkbride, engineer maintenance of way and structures of the Southern Pacific, Pacific Lines, has been promoted to chief engineer, succeeding **George W. Boschke,** who died on March 3, as noted in the *Railway Age* of March 12. Mr. Kirkbride will have supervision over construction, maintenance and valuation matters. **W. M. Jaekle,** assistant engineer maintenance of way and structures, has been advanced to engineer maintenance of way and structures, to succeed Mr. Kirkbride. The headquarters of Mr. Kirkbride and Mr. Jaekle will be as before at San Francisco, Cal.

Stanley W. Law, assistant signal engineer of the Northern Pacific, with headquarters at St. Paul, Minn., has been promoted to signal engineer, with the same headquarters, to succeed **C. A. Christofferson,** who has retired because of ill health, after 23 years' service with this road. Mr. Law was educated in electrical engineering at the Case School of Applied Science, from which he was graduated in May, 1906. He entered railway service immediately thereafter as an interlocking apprentice on the Pennsylvania, going with the Illinois Central as a draftsman in the signal department in March, 1907. A year later he was advanced to chief draftsman and in December, 1908, he joined the signal department of the Chicago, Milwaukee, St. Paul & Pacific as an inspector. Mr. Law next went with the Chicago & North Western in June, 1909, as an estimator in the signal engineer's office, subsequently becoming inspector and chief draftsman. Three years later he resigned to enter the construction department of the General Railway Signal Company, and later became an assistant in its experimental laboratory at Rochester, N. Y. He entered service with the Northern Pacific in March, 1913, when he became signal inspector at

Stanley W. Law

St. Paul. Later he served as electrical engineer of signaling and engineer on signal valuation work, being advanced to assistant signal engineer on February 13, 1919. During the World War Mr. Law was a first lieutenant in the Engineers' Reserve Corps.

MECHANICAL

E. R. Hanna, master mechanic of the Arkansas division of the Missouri Pacific, with headquarters at Little Rock, Ark., has had his jurisdiction extended to include the Missouri division, while **W. C. Smith,** master mechanic of the Illinois division, with headquarters at Dupo, Ill., has had his jurisdiction extended over the Missouri-Illinois in Missouri. The position of master mechanic at Poplar Bluff, Mo., with jurisdiction over the Missouri division and the Missouri-Illinois in Missouri, which has been held by **E. F. Stroeh,** has been abolished. The jurisdiction of **C. R. Kilbury,** master mechanic of the Omaha and Northern Kansas divisions, with headquarters at Falls City, Neb., has been extended over the Kansas City Terminal division, and **R. H. Tait,** master mechanic of the latter division, at Kansas City, has been appointed assistant master mechanic at the same point.

H. C. Gugler, master mechanic of the Galesburg division of the Chicago, Burlington & Quincy, with headquarters at Galesburg, Ill., has been transferred to Chicago, where he has jurisdiction over the Chicago, Aurora and La Crosse divisions. **M. J. Brown,** master mechanic of the Chicago and Aurora divisions, at Chicago, has been appointed assistant master mechanic at the same point, succeeding **J. S. Ford,** assistant master mechanic at Aurora, who has been transferred. **G. P. Trachta,** master mechanic of the La Crosse division, with headquarters at North La Crosse, Wis., has been transferred to Galesburg, to succeed Mr. Gugler. **G. E. Melker,** master mechanic at Hannibal, Mo., has had his jurisdiction extended to include the St. Joseph division, succeeding **G. S. Wilber,** master mechanic at St. Joseph, Mo., and the position of master mechanic at the latter point has been abolished. **F. R. Butts,** assistant master mechanic, with headquarters at Creston, Iowa, has been transferred to St. Joseph, to occupy a newly-created position, and the position of assistant master mechanic at Creston has been abolished. The position of assistant master mechanic at Brookfield, Mo., which has been held by **D. Nott,** has also been discontinued, and Mr. Nott has been transferred to Galesburg, Ill., to succeed **C. E. Plott,** transferred.

PURCHASES AND STORES

Leon S. Myers, acting division storekeeper of the Tacoma division of the Northern Pacific, with headquarters at Seattle, Wash., has been appointed storekeeper of that division, to succeed **Glenn C. Hower,** who has retired.

MOTOR TRANSPORT

Officers of the newly-organized Southern Pacific Transport Company of Louisiana, Inc., highway subsidiary of the Texas & New Orleans, have been elected as follows: President, **R. C. Watkins;** vice-president and general manager, **H. M. Moors;** auditor, **G. R. Cottingham;** secretary, **F. W. Hopkins;** treasurer, **A. Capdevielle;** assistant treasurer, **O. M. Longnecker;** general freight agent, **Joseph Lallande.** Mr. Watkins is vice-president and general manager of the Louisiana lines of the Texas & New Orleans and Mr. Moors is freight claim agent of the same railroad. The other officers are also connected with the Texas & New Orleans in positions similar to those to which they have been elected with the motor transport company. Further details concerning the organization of this highway subsidiary will be found elsewhere in the news column of this issue of *Railway Age.*

SPECIAL

The Eastern Lakes department of the Railway Express Agency, heretofore a part of the Central departments, has been assigned to the Eastern departments, under the jurisdiction of **C. W.**

Robie, vice-president at New York. The Ohio Valley department, heretofore a part of the Central departments, has been assigned to the Southwestern departments, under the jurisdiction of **C. D. Summy,** vice-president at St. Louis, Mo. The remainder of the territory formerly known as the Central departments — the Chicago, Northern and Trans-Missouri departments — has been consolidated with the Central Pacific, North Pacific and South Pacific departments, heretofore comprising the Western departments, and the combined territory will be known as the Western departments, under the jurisdiction of **L. O. Head,** vice-president at Chicago.

OBITUARY

E. M. Troxell, general agent for the Atchison, Topeka & Santa Fe at Philadelphia, Pa., died on March 8, of heart disease.

Thornwall Fay, who retired in 1912 as president of the lines of the Southern Pacific in Texas and Louisiana, and later served as executive officer for the receiver of the International-Great Northern, died on March 31 at Houston, Tex.

F. M. Worthington, who retired in 1926 as superintendent of the Coast division of the Southern Pacific, Pacific Lines, with headquarters at San Francisco, Cal., died at his home in Los Angeles, Cal., on March 28. Mr. Worthington, who was 70 years of age, had a service record of 44 years with the Southern Pacific.

Stuart A. Allen, assistant to the general freight traffic manager of the Baltimore & Ohio, died on March 30 at his home at Chicago, after a long illness. Last September, Mr. Allen, who had been freight traffic manager at Chicago, was appointed assistant to the general freight traffic manager, with headquarters at Baltimore, Md., following his return from a leave of absence because of ill health. However, he remained at Chicago hoping to regain his health before taking up his new duties. A biographical sketch and a photograph of Mr. Allen was presented in the *Railway Age* of September 19, 1931.

William Schlafge, formerly mechanical manager of the Erie, and also at one time president of the American Railway Master Mechanics' Association, died at Miami, Fla., on April 5. Mr. Schlafge, who was born on October 11, 1868, in Berlin, Germany, and was educated in the public schools of Mauch Chunk, Pa., obtained his first railway experience with the Lehigh Valley, beginning in 1882. In 1893 he became an apprentice at the Minneapolis, Minn., shops of the Minneapolis, St. Paul & Sault Ste. Marie, and subsequently served that road as roundhouse foreman at Gladstone, Mich. From 1898 to 1900 he was employed by the Escanaba & Lake Superior as locomotive fireman, locomotive engineman and master mechanic, leaving that road in the latter year to become roundhouse foreman for the Baltimore & Ohio at Newark, Ohio. Subsequently, following a short period of service as general foreman in charge of the locomotive and car departments of the Chicago Junction (now operated by the Chicago River & Indiana), he became connected with the Erie, with which company he spent the remainder of his active railroad career. Starting with that road in March, 1903, as general foreman at Port Jervis, N. Y., he was promoted, in 1904, to master mechanic at Jersey City, N. J.; in December, 1906, to master car builder at Meadville, Pa.; in March, 1907, to general master mechanic and assistant mechanical superintendent; in October, 1907, to mechanical superintendent, lines east of Salamanca, N. Y., and Buffalo, and, on January 4, 1912, to general mechanical superintendent. This position Mr. Schlafge held until the termination of Federal control, on March 1, 1920, when he was appointed mechanical manager of the Erie, with headquarters at New York. He resigned from this post in March, 1922, to become president of the Meadville Machinery Co., Inc., a corporation organized at that time to take over operation of a number of the Erie's car and locomotive shops. He retained that office until his subsequent retirement from active service. Mr. Schlafge was active for many years in the American Railway Master Mechanics' Association (now part of the Mechanical Division, American Railway Association), serving as president of the former organization from 1916 until his resignation in June, 1918. He was also for some time chairman of the Mechanical Division's Committee on Fuel Performance and Smoke Prevention.

William Schlafge

W. J. Jackson, Former C. & E. I. President, Dies

William J. Jackson, who retired in 1931 as chairman of the executive committee of the Chicago & Eastern Illinois with the title of president-retired, died on April 4 of pneumonia, at Biloxi, Miss. Mr. Jackson's railway career had extended over a period of 54 years, during which time he had served in various capacities in the mechanical, traffic, operating and executive departments of a number of roads. He was born on December 28, 1859, at Toronto, Ont., and his first railway experience was obtained at the age of 17, when he became a machinist's helper in the shops of the Grand Trunk (now part of the Canadian National) at Toronto. In May, 1878, he entered the traffic department of the same road as a freight clerk at Toronto, later going with the Chicago & Grand Trunk (now the Grand Trunk Western) as chief claim clerk at Chicago, where subsequently he became general freight foreman and then assistant agent. In August, 1891, Mr. Jackson became assistant local freight agent on the Chicago & Eastern Illinois, at Chicago, and from 1893 to 1899, he was local agent at that point. He was then advanced to assistant general superintendent, being further promoted to general superintendent in February, 1903. Later Mr. Jackson was appointed general manager, and in December, 1909, he was elected vice-president and general manager, which position he retained until May, 1913, when he was appointed receiver of the C. & E. I., and also elected president of the corporate company. During federal control of the railroads, Mr. Jackson served as federal manager of the C. & E. I., resuming the position of receiver on the termination of federal control. In January, 1922, he was elected president of the reorganized company, being elected chairman of the executive committee in July, 1925.

William J. Jackson

TRANS-ATLANTIC STEAMSHIP LINES, on March 31, advertised reduced rate schedules which will bring the cost of ocean travel down to pre-war levels. The reductions are based on a 20 per cent cut in the rates, heretofore effective during the Winter season for all classes except third, where the reduction will be 10 per cent. It was also announced that Summer rates, which have been higher, will be discontinued and that operations throughout the year will be conducted on the basis of the lower Winter schedule.

Tables of Revenues and Expenses of Railways Begin on Next Left Hand Page

DRIVING along a heavily traveled road, you are quick to appreciate how one slow automobile can delay a whole line. « The same thing is true of slow-moving, low horsepower locomotives. « Not only are such locomotives inadequate to haul loads economically, but they interfere with the fast-moving, modern locomotive. They set an uneconomical pace for the whole road.

From a dollars and cents standpoint you can't afford to run the old ones.

LIMA LOCOMOTIVE WORKS • Incorporated • LIMA • OHIO

Revenues and Expenses of Railways

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1932

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1931.
Akron, Canton & Youngstown	Feb.	171	$126,109	$40	$134,033	$11,271	$12,411	$9,978	$40,936	$7,615	$82,211	61.3	$51,822	$39,726	$28,728	$19,523
	2 mos.	171	243,204	79	259,411	24,564	25,528	19,772	84,437	18,345	172,646	66.6	86,765	62,567	41,578	34,600
Alton	Feb.	1,017	815,860	193,354	1,133,550	112,126	182,136	64,948	490,318	48,908	915,808	80.8	217,742	108,359	—17,334	57,435
	2 mos.	1,017	1,689,581	411,529	2,372,344	251,338	387,272	138,091	1,043,434	130,064	1,985,814	83.7	386,530	167,913	—87,894	—154,252
Alton & Southern	Feb.	30	.....	.....	73,121	10,869	5,369	5,435	27,895	1,661	51,229	70.06	21,892	14,627	11,298	14,092
	2 mos.	20	.....	.....	151,631	14,725	11,153	10,931	56,436	9,807	103,052	67.96	48,579	33,422	27,161	31,939
Atchison, Topeka & Santa Fe	Feb.	9,723	6,739,472	1,215,797	8,769,028	880,336	2,347,793	359,225	3,082,418	381,016	7,047,799	80.4	1,721,229	822,986	909,582	1,324,495
	2 mos.	9,723	13,281,756	2,625,718	17,522,267	1,820,752	4,837,495	776,452	6,633,555	776,347	14,833,643	84.7	2,688,624	807,033	953,838	2,967,892
Gulf, Colorado & Santa Fe	Feb.	1,955	1,125,060	50,756	1,245,289	173,863	297,945	58,606	440,710	76,101	1,051,412	84.4	193,877	95,024	—1,113	—122,150
	2 mos.	1,955	2,149,208	111,132	2,398,190	305,469	610,937	114,699	914,004	144,253	2,091,590	87.2	306,600	106,989	—90,088	—267,404
Panhandle & Santa Fe	Feb.	1,876	661,784	35,407	753,792	155,938	172,884	21,066	224,869	30,785	602,921	80.0	150,871	93,886	12,837	—81,533
	2 mos.	1,876	1,251,230	76,480	1,431,637	270,742	359,456	41,878	484,905	64,484	1,218,844	85.1	212,793	98,889	—68,345	—97,147
Atlanta & West Point	Feb.	93	71,313	20,908	111,152	18,229	24,296	8,807	51,223	9,664	115,764	104.1	—4,612	—16,018	—26,430	—8,451
	2 mos.	93	148,702	46,614	230,614	35,993	52,194	18,276	108,551	20,536	242,436	105.1	—11,822	—34,662	—53,705	—24,750
Western of Alabama	Feb.	133	72,818	23,141	110,739	19,113	31,177	8,829	49,887	9,623	121,768	110.0	—11,029	—21,599	—17,716	14,190
	2 mos.	133	153,476	49,840	232,043	38,262	66,050	18,901	106,386	19,916	255,607	110.2	—23,564	—44,714	—34,466	7,528
Atlanta, Birmingham & Coast	Feb.	641	193,828	5,259	224,381	55,517	64,616	22,284	103,187	17,241	271,301	120.9	—46,920	—62,320	—74,219	—90,413
	2 mos.	641	377,367	11,536	438,227	117,190	134,549	46,870	217,909	36,378	569,713	130.0	—131,486	—162,307	—192,493	—190,907
Atlantic Coast Line	Feb.	5,144	3,080,324	705,183	4,247,091	533,459	805,447	132,880	1,405,759	150,370	3,070,740	72.3	1,176,351	775,874	563,314	1,349,961
	2 mos.	5,144	6,164,936	1,349,533	8,423,270	1,109,681	1,601,846	296,942	3,001,173	308,062	6,406,060	76.1	2,017,210	1,216,439	822,150	2,131,726
Charleston & Western Carolina	Feb.	342	135,738	1,825	142,091	19,366	25,128	6,665	58,886	5,813	115,728	81.4	26,363	9,863	6,660	9,410
	2 mos.	342	274,466	4,441	288,709	42,707	53,159	13,526	127,069	10,822	247,139	85.6	41,570	8,546	3,370	18,768
Baltimore & Ohio	Feb.	6,397	9,137,921	865,228	10,799,264	1,036,640	2,050,545	426,092	4,183,604	621,380	8,398,273	77.8	2,400,991	1,622,943	1,402,591	713,568
	2 mos.	6,397	18,795,601	1,867,453	22,238,501	1,961,172	4,335,894	840,977	8,833,670	1,316,687	17,490,788	78.7	4,747,713	3,193,259	2,757,507	2,041,721
Baltimore & Ohio Chic. Term	Feb.	85	.....	.....	278,266	22,117	51,354	1,987	156,815	21,469	259,358	92.8	18,908	—34,680	51,228	50,387
	2 mos.	85	.....	.....	561,588	45,233	106,923	4,220	293,800	38,592	500,448	89.1	61,110	—46,066	139,715	104,463
Staten Island Rapid Transit	Feb.	23	49,479	90,224	146,291	7,195	13,057	2,048	79,671	13,596	115,567	79.0	30,724	12,424	—3,696	2,151
	2 mos.	23	99,259	187,736	300,875	14,773	26,392	4,235	172,736	28,972	247,108	82.1	53,767	17,667	—12,290	703
Bangor & Aroostook	Feb.	619	581,077	27,574	630,514	84,521	94,655	4,466	142,751	22,490	349,618	55.5	280,896	227,420	206,900	259,882
	2 mos.	619	1,200,936	56,514	1,301,767	161,566	184,252	9,276	293,628	48,708	699,555	53.7	602,212	491,263	448,873	489,004
Belt Ry. Co. of Chicago	Feb.	53	.....	.....	326,936	24,367	30,226	3,184	169,876	6,864	234,517	71.7	92,419	33,189	71,364	149,846
	2 mos.	53	.....	.....	657,494	43,294	62,471	6,479	347,531	14,246	474,021	72.1	183,473	63,422	137,126	298,345
Bessemer & Lake Erie	Feb.	226	230,259	1,486	238,212	27,479	185,081	11,038	108,184	38,180	369,962	155.3	—131,750	—157,175	—135,712	—164,865
	2 mos.	226	467,040	3,049	483,765	63,623	365,970	23,079	235,576	79,204	767,447	158.6	—283,682	—334,557	—312,540	—364,413
Boston & Maine	Feb.	2,092	2,528,237	792,009	3,908,566	564,849	581,143	72,869	1,497,554	180,578	2,911,054	74.5	997,512	765,563	579,515	804,629
	2 mos.	2,092	5,147,524	1,590,282	7,939,365	1,193,002	1,207,853	149,267	3,163,893	372,637	6,111,224	77.0	1,828,141	1,364,572	989,633	1,534,118
Brooklyn Eastern Dist. Term	Feb.	11	75,334	.....	75,998	5,178	7,473	209	23,327	6,529	42,716	56.2	33,282	26,409	26,409	38,291
	2 mos.	11	145,033	.....	146,557	10,791	15,369	405	47,890	12,770	87,225	59.5	59,332	46,085	46,085	72,744
Burlington-Rock Island	Feb.	310	102,890	3,091	111,526	22,463	10,362	4,887	44,292	8,867	90,597	81.2	20,929	14,026	—1,277	—52,217
	2 mos.	310	201,694	4,607	216,672	40,297	22,363	10,748	92,602	18,737	184,095	85.0	32,577	18,771	—13,173	—78,205
Cambria & Indiana	Feb.	37	99,824	.....	100,017	5,926	43,437	490	12,012	8,152	70,017	70.0	30,000	18,753	70,422	96,566
	2 mos.	37	194,680	.....	195,085	12,195	81,230	1,134	24,070	16,193	134,822	69.11	60,263	36,160	152,476	197,992
Canadian Pac. Lines in Maine	Feb.	233	182,115	16,840	212,938	34,802	41,558	4,780	86,808	3,746	171,694	80.6	41,244	30,244	8,758	40,596
	2 mos.	233	383,209	35,585	446,472	64,755	83,755	9,805	170,081	7,828	336,224	75.3	110,248	88,248	46,511	25,022
Canadian Pac. Lines in Vermont	Feb.	85	40,380	16,120	74,276	12,690	24,576	2,114	60,966	2,863	103,209	139.0	—28,933	—33,643	—54,220	—46,261
	2 mos.	85	104,352	35,255	175,493	27,010	49,400	4,327	124,631	5,778	211,146	120.3	—35,653	—45,073	—87,935	—92,226
Central of Georgia	Feb.	1,944	776,666	112,598	1,024,270	106,845	193,279	54,451	469,597	73,986	906,950	88.5	117,320	15,358	—6,903	165,098
	2 mos.	1,944	1,536,146	233,640	2,042,922	220,696	386,214	110,528	967,635	143,544	1,845,944	90.4	196,978	—5,588	—42,054	399,599
Central New Jersey	Feb.	692	1,995,808	436,114	2,599,498	198,116	473,057	45,259	1,035,229	96,424	1,864,388	71.7	735,110	509,103	438,699	357,275
	2 mos.	692	3,975,211	884,401	5,195,360	407,219	1,007,508	91,470	2,206,487	206,475	3,952,441	76.1	1,242,919	805,355	655,378	795,341
Central Vermont	Feb.	457	313,832	54,451	413,278	53,482	93,694	16,344	197,380	20,891	382,316	92.5	30,962	13,575	—3,249	61,190
	2 mos.	457	641,731	110,602	841,891	129,764	182,206	30,801	417,131	42,930	803,723	95.5	38,168	3,440	—12,727	111,050
Chesapeake & Ohio	Feb.	3,144	7,195,102	206,798	7,682,794	951,822	1,401,747	149,670	1,860,302	315,113	4,697,591	61.1	2,985,203	2,197,134	2,249,267	1,739,490
	2 mos.	3,144	14,632,667	464,804	15,681,026	1,980,618	2,924,082	314,042	4,046,402	645,316	9,950,436	63.4	5,730,590	4,154,448	4,200,793	4,501,137
Chicago & Eastern Illinois	Feb.	938	871,702	101,711	1,074,778	129,061	222,632	61,477	470,257	58,523	951,744	88.6	123,034	12,522	—115,714	—255,583
	2 mos.	938	1,758,877	216,457	2,175,898	274,609	467,966	128,245	990,561	124,063	2,004,569	92.1	171,329	—49,766	—304,914	—441,908

Continued on Next Left Hand Page

60,000 FRANKLIN WEDGES ARE HOLDING MAINTENANCE DOWN

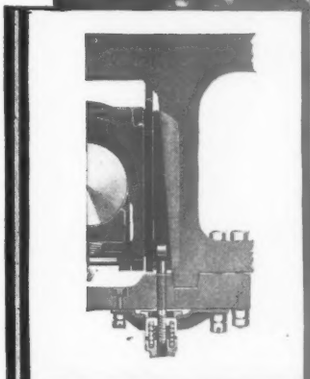
KEEP out slack and you keep out trouble.

Any play between driving box and pedestal soon accumulates until every revolution of the drivers brings a hammer blow to the whole running gear.

Close machining and careful wedge adjustment can't keep out the last fractional inch of slack. It must be left to allow for expansion as box temperature rises.

But Franklin Automatic Adjustable Wedges are set to eliminate any slack, and as driving boxes warm up, the automatic adjustment which takes place constantly provides for expansion without letting slack creep in.

All over the country locomotives are running longer between shoppings by reason of the Franklin Automatic Adjustable Wedge.



FRANKLIN RAILWAY SUPPLY COMPANY, Inc.

NEW YORK CHICAGO MONTREAL

Revenues and Expenses of Railways

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1932—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1931.
Chicago & Illinois Midland	Feb.	131	$230,543	$1,661	$238,585	$15,060	$45,658	$18,117	$59,933	$16,930	$155,725	65.3	$82,860	$74,211	$75,893	$7,578
	2 mos.	131	445,360	3,617	462,152	31,856	94,347	37,978	126,953	34,574	324,996	70.3	137,156	119,772	123,045	28,877
Chicago & North Western	Feb.	8,442	4,500,542	835,429	6,024,868	490,889	1,259,214	162,480	2,668,495	293,377	4,911,852	81.5	1,113,016	426,130	181,641	383,775
	2 mos.	8,442	8,798,253	1,804,799	11,989,222	1,037,067	2,527,709	322,600	5,648,109	606,211	10,218,489	85.2	1,770,733	400,148	—92,096	890,563
Chicago, Burlington & Quincy	Feb.	9,267	5,496,380	620,581	6,877,497	508,054	1,265,142	212,840	2,538,508	281,108	4,857,686	70.6	2,019,811	1,273,887	996,736	1,816,326
	2 mos.	9,284	10,959,616	1,378,812	13,870,032	1,127,864	2,576,948	422,247	5,413,330	626,239	10,268,572	74.0	3,601,460	2,162,662	1,631,742	3,926,304
Chicago Great Western	Feb.	1,495	1,096,024	67,967	1,250,018	117,232	171,119	63,546	524,239	54,723	932,691	74.6	317,327	243,206	47,071	195,023
	2 mos.	1,495	2,238,492	150,557	2,566,253	260,708	352,843	136,505	1,101,941	116,461	1,973,013	76.9	593,240	445,118	48,085	406,665
Chicago, Indianapolis & Louisville	Feb.	644	570,485	55,131	703,843	63,818	151,422	28,864	305,130	25,866	582,392	82.7	121,451	57,079	—41,142	—22,082
	2 mos.	644	1,170,924	124,953	1,457,534	130,057	295,134	54,360	646,440	57,178	1,198,566	82.2	258,968	130,226	—70,499	11,068
Chicago, Mil., St. Paul & Pacific	Feb.	11,273	5,605,398	497,556	6,782,925	661,154	1,563,156	228,126	2,934,703	271,659	5,691,342	83.9	1,091,583	358,251	—93,256	345,355
	2 mos.	11,273	11,322,998	1,085,055	13,798,713	1,250,467	3,145,883	482,858	6,160,102	579,378	11,701,588	84.8	2,097,125	627,578	—302,585	917,699
Chicago River & Indiana	Feb.	20	.....	.....	374,487	14,000	32,000	1,630	126,825	12,875	187,330	50.0	187,157	148,416	205,750	223,220
	2 mos.	20	.....	.....	778,961	34,000	56,000	3,585	273,554	25,935	393,074	50.5	385,887	305,820	430,892	467,914
Chicago, Rock Island & Pacific	Feb.	7,620	4,608,591	602,621	5,788,165	491,682	1,167,712	197,155	2,380,158	289,217	4,605,471	79.6	1,182,694	679,598	302,495	723,487
	2 mos.	7,620	9,152,858	1,285,409	11,625,182	1,057,880	2,464,805	409,996	5,050,975	610,032	9,762,129	84.0	1,863,053	854,813	141,192	1,621,438
Chicago, Rock Island & Gulf	Feb.	721	340,263	30,616	355,911	29,321	34,246	17,935	116,781	19,100	219,784	61.8	136,127	113,105	62,518	92,627
	2 mos.	721	690,398	64,565	725,978	59,170	73,230	36,491	242,330	39,623	456,023	62.8	269,955	223,819	138,262	233,893
Chic., St. Paul, Minn. & Omaha	Feb.	1,736	932,678	148,991	1,190,053	147,736	214,908	33,513	581,442	63,397	1,048,437	88.1	141,616	56,475	—11,694	—118,526
	2 mos.	1,736	1,858,106	310,025	2,378,076	314,818	453,896	66,629	1,242,060	128,619	2,222,312	93.4	155,764	—20,108	—160,284	—112,858
Clinchfield	Feb.	309	370,071	2,565	378,471	44,056	102,323	16,677	78,081	14,667	255,804	67.6	122,667	57,661	66,892	109,475
	2 mos.	309	729,529	5,521	746,844	84,404	195,618	34,573	160,088	29,423	504,106	67.5	242,738	112,512	113,260	294,707
Colorado & Southern	Feb.	1,037	391,525	27,052	470,176	59,611	125,345	12,679	169,898	31,332	398,611	84.8	71,565	2,880	—7,095	39,646
	2 mos.	1,037	818,828	60,294	984,708	109,932	240,719	27,561	383,056	70,314	828,901	84.2	155,807	18,388	—3,693	148,382
Ft. Worth & Denver City	Feb.	694	376,865	35,997	490,671	45,436	79,812	17,635	149,403	33,015	316,466	64.5	174,205	141,657	117,612	84,195
	2 mos.	694	768,249	86,089	1,008,504	96,930	167,243	34,884	328,281	69,046	667,023	66.1	341,481	276,796	226,936	184,340
Wichita Valley	Feb.		Will not file—Class II Road													
	2 mos.		Will not file—Class II Road													
Columbus & Greenville	Feb.	167	54,942	7,719	67,530	13,521	11,744	3,427	26,873	9,489	65,046	96.3	2,484	—520	1,269	10,038
	2 mos.	167	116,780	13,961	139,997	33,233	24,794	6,600	59,343	26,657	150,619	107.6	—10,622	—16,626	—14,806	13,866
Conemaugh & Black Lick	Feb.	20	16,296	.....	40,073	5,925	11,009	394	26,943	3,575	47,846	119.4	—7,773	—8,273	—7,148	—11,671
	2 mos.	20	34,152	.....	78,582	11,589	20,641	897	51,826	7,488	92,441	117.6	—13,859	—14,859	—12,418	—18,680
Delaware & Hudson	Feb.	854	1,627,540	111,479	1,866,270	302,628	520,562	54,513	841,559	134,023	1,853,672	99.3	12,598	—75,305	—77,453	195,735
	2 mos.	854	3,251,906	248,313	3,769,102	625,821	1,074,635	107,742	1,691,887	299,279	3,796,981	100.7	—27,879	—208,709	—207,115	368,036
Delaware Lack. & Western	Feb.	998	2,776,828	632,602	3,947,002	354,391	696,484	121,571	1,696,159	150,899	3,048,610	77.2	898,392	473,076	479,237	546,818
	2 mos.	998	5,324,351	1,336,167	7,827,246	644,475	1,456,603	246,174	3,565,007	315,084	6,288,218	80.3	1,539,028	713,538	730,612	1,056,453
Denver & Rio Grande Western	Feb.	2,556	1,136,341	78,132	1,301,270	169,605	359,992	47,966	478,819	79,534	1,142,501	87.8	158,769	—6,461	14,492	230,277
	2 mos.	2,556	2,448,403	167,568	2,792,773	333,804	728,246	97,646	1,039,207	168,489	2,379,392	85.2	413,381	83,127	125,192	676,507
Denver & Salt Lake	Feb.	232	159,103	7,547	177,768	19,449	29,671	1,668	30,227	10,035	91,050	51.2	86,718	69,716	74,458	1,640
	2 mos.	232	376,079	14,375	413,387	39,358	61,159	3,541	66,722	21,062	191,842	46.4	221,545	187,537	198,758	103,046
Detroit & Mackinac	Feb.	242	42,181	2,794	50,296	6,626	8,929	1,201	23,255	4,011	44,020	87.5	6,276	—1,043	—2,076	1,668
	2 mos.	242	78,049	7,059	95,944	14,236	19,431	2,843	47,023	7,763	91,293	95.2	4,651	—9,944	—11,150	—3,895
Detroit & Toledo Shore Line	Feb.	50	256,606	.....	258,840	18,640	23,579	7,387	58,576	7,091	115,273	44.5	143,567	116,448	69,265	64,229
	2 mos.	50	520,140	.....	524,318	37,064	48,287	14,911	120,539	14,285	235,072	44.8	289,246	235,969	139,843	131,486
Detroit Terminal	Feb.	19	.....	.....	71,919	6,520	8,440	.....	34,466	3,023	52,449	73.1	19,470	6,759	286	2,650
	2 mos.	19	.....	.....	140,960	13,772	16,908	.....	69,973	6,331	106,984	75.9	33,976	9,022	—5,729	8,814
Detroit, Toledo & Ironton	Feb.	487	363,382	588	374,493	37,536	72,873	11,021	133,219	23,694	278,343	74.3	96,150	50,162	36,216	223,104
	2 mos.	487	719,680	1,272	743,161	73,018	143,065	22,763	274,304	47,431	560,581	75.4	182,580	88,949	60,952	314,354
Duluth, Missabe & Northern	Feb.	563	66,667	1,440	84,963	86,273	179,959	3,388	129,441	40,298	439,359	517.1	—354,396	—363,390	—363,206	—601,718
	2 mos.	563	124,777	3,414	161,428	173,110	376,657	6,786	272,783	80,820	910,119	563.8	—748,691	—766,143	—769,061	—1,214,899
Duluth, Winnipeg & Pacific	Feb.	178	90,745	2,772	96,854	13,552	22,546	3,509	43,229	4,491	87,757	90.6	9,097	4,520	23,464	—9,278
	2 mos.	178	169,455	6,565	182,063	28,453	42,945	6,704	87,807	11,806	178,570	98.1	3,493	—5,630	32,868	—8,670
Elgin, Joliet & Eastern	Feb.	447	729,904	7	789,947	99,794	170,248	14,540	346,753	57,199	688,508	87.2	101,439	—14,117	—53,855	54,812
	2 mos.	447	1,477,286	19	1,600,476	205,615	350,231	28,229	734,289	115,070	1,433,333	89.6	167,143	—63,957	—148,770	121,936
Erie Railroad	Feb.	2,046	4,367,110	493,980	5,324,416	503,538	1,164,919	155,111	2,030,057	264,146	4,142,692	77.8	1,181,724	775,748	669,516	994,158
	2 mos.	2,046	8,710,348	1,022,962	10,655,216	1,033,997	2,371,612	303,326	4,272,436	526,816	8,545,705	80.2	2,109,511	1,298,632	1,082,343	1,898,751

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Revenues and Expenses of Railways

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1932—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1931.
Chicago & Erie	Feb.	269	$663,746	$22,132	$736,874	$77,181	$107,235	$25,457	$215,285	$35,023	$460,110	62.4	$276,764	$220,141	$30,006	$5,393
	2 mos.	269	1,302,272	50,841	1,443,725	161,652	220,121	51,390	452,193	72,070	957,345	66.3	486,380	372,631	—15,862	51,571
New Jersey & New York	Feb.	45	17,714	73,221	93,875	8,057	23,563	1,599	48,084	3,702	85,005	90.6	8,870	3,829	—17,170	—16,019
	2 mos.	45	34,373	147,994	187,639	16,518	50,264	3,154	104,322	7,600	181,858	96.9	5,781	—5,006	—46,865	—41,740
N. Y., Susquehanna & Western	Feb.	131	239,274	29,697	296,310	28,671	46,419	5,124	119,005	11,701	210,920	71.2	85,390	52,628	28,768	75,676
	2 mos.	131	462,665	60,773	573,176	60,494	95,591	9,782	248,477	24,580	438,922	76.6	134,254	69,335	21,659	150,516
Florida East Coast	Feb.	864	569,740	301,340	987,150	105,654	129,178	24,146	210,131	43,454	529,664	53.7	457,486	357,639	301,745	389,900
	2 mos.	864	1,132,714	533,221	1,890,087	216,579	260,775	51,161	452,329	87,858	1,100,512	58.2	789,575	589,356	475,021	580,964
Fort Smith & Western	Feb.	249	48,130	1,795	53,753	11,926	11,130	4,577	24,453	4,559	56,444	105.0	—2,691	—5,740	—8,479	—8,665
	2 mos.	249	110,143	3,458	123,791	25,608	23,101	9,272	50,733	9,409	118,086	95.4	5,705	—351	—4,839	—5,323
Galveston Wharf	Feb.	11	.....	.....	181,019	47,297	4,903	3,309	22,939	5,634	99,905	55.2	81,114	58,077	58,024	21,543
	2 mos.	11	.....	.....	349,957	91,336	9,576	6,996	44,165	14,530	197,385	56.4	152,572	106,535	106,534	48,459
Georgia R. R.	Feb.	329	195,321	16,579	232,818	27,764	51,193	19,266	118,434	18,356	235,273	101.1	—2,455	—10,110	—614	19,682
	2 mos.	329	389,229	36,739	467,283	64,262	108,334	38,867	249,442	38,657	500,173	107.0	—32,890	—48,385	—27,229	39,502
Georgia & Florida	Feb.	463	60,034	1,160	66,808	19,559	16,465	8,632	33,526	6,654	85,028	127.3	—18,220	—24,932	—27,838	—21,643
	2 mos.	463	124,670	2,796	138,018	38,490	32,685	17,256	69,970	13,587	172,373	124.9	—34,355	—47,768	—54,113	—50,246
Grand Trunk Western	Feb.	1,021	1,133,427	74,683	1,317,434	155,459	289,676	52,726	631,299	91,565	1,229,676	93.3	87,758	—26,759	—132,173	—96,158
	2 mos.	1,021	2,253,858	155,937	2,630,912	313,259	577,634	100,888	1,339,168	187,671	2,537,815	96.5	93,097	—136,012	—336,856	—278,331
Canadian Natl. Lines in New Eng.	Feb.	172	82,753	9,912	104,814	18,590	17,480	4,194	65,929	10,114	119,876	114.4	—15,062	—29,192	—74,355	—85,764
	2 mos.	172	160,908	16,013	202,055	43,934	38,453	7,911	134,434	20,025	252,137	124.7	—50,082	—78,342	—170,558	—162,172
Great Northern	Feb.	8,338	2,930,615	341,352	3,721,557	373,752	1,030,275	175,678	1,802,267	188,698	3,605,393	96.9	116,164	—372,089	—540,803	137,037
	2 mos.	8,338	5,963,087	714,854	7,590,976	851,005	2,080,894	367,724	3,732,756	405,486	7,517,802	99.0	73,174	—951,038	—1,275,958	262,476
Green Bay & Western	Feb.	234	92,648	1,428	94,831	20,007	16,283	5,107	43,792	2,709	87,889	92.6	6,942	—58	—164	4,670
	2 mos.	234	175,620	2,675	181,480	37,739	31,271	6,161	92,873	6,455	174,138	95.9	7,342	—6,661	—8,295	5,953
Gulf & Ship Island	Feb.	307	64,693	10,815	89,093	8,051	14,410	3,083	53,147	4,851	84,172	94.5	4,921	—12,203	—21,119	—69,599
	2 mos.	307	132,092	22,395	177,542	22,905	27,647	8,795	105,573	16,066	182,372	102.7	—4,830	—39,054	—58,688	—113,460
Gulf, Mobile & Northern	Feb.	733	223,789	8,581	250,253	52,137	54,834	22,246	100,040	18,564	247,821	99.03	2,432	—20,647	—37,317	—33,720
	2 mos.	733	450,190	25,916	509,027	90,418	113,264	48,216	214,798	38,605	505,301	99.27	3,726	—42,413	—76,156	—1,227
Illinois Central	Feb.	5,018	5,416,591	777,898	6,733,545	384,527	1,318,287	210,726	2,529,268	311,906	4,796,152	71.2	1,937,393	1,377,414	1,300,910	323,852
	2 mos.	5,018	10,700,154	1,652,498	13,393,041	922,927	2,771,265	433,716	5,335,591	642,759	10,198,664	76.1	3,194,377	2,077,898	1,937,585	885,720
Yazoo & Mississippi Valley	Feb.	1,681	668,319	93,584	839,670	76,709	153,286	33,456	428,143	53,238	750,272	89.4	89,398	—47,481	—121,557	—215,305
	2 mos.	1,681	1,645,184	189,199	1,986,003	183,159	331,016	66,343	936,998	111,288	1,636,278	82.4	349,725	76,346	—98,728	—372,378
Illinois Central System	Feb.	6,700	6,084,910	871,482	7,573,215	461,236	1,471,573	244,182	2,957,411	365,144	5,546,424	73.2	2,026,791	1,329,933	1,179,353	108,547
	2 mos.	6,700	12,345,338	1,841,697	15,379,044	1,106,086	3,102,281	500,059	6,272,589	754,047	11,834,942	77.0	3,544,102	2,154,244	1,838,857	513,342
Illinois Terminal	Feb.	543	309,894	61,163	392,031	46,811	54,153	16,168	157,522	26,058	299,920	76.50	92,111	61,511	33,688	84,381
	2 mos.	543	659,816	125,753	827,432	94,813	112,440	33,020	322,365	54,629	615,871	74.43	211,561	150,361	94,947	172,123
Kansas City Southern	Feb.	783	613,380	26,213	738,815	72,784	111,546	48,516	247,173	59,407	541,954	73.4	196,861	108,662	86,970	292,078
	2 mos.	783	1,347,641	53,931	1,597,135	139,932	246,197	93,774	528,724	117,867	1,131,100	70.8	466,035	289,509	250,828	540,539
Texarkana & Ft. Smith	Feb.	90	68,838	1,644	80,038	17,551	12,847	6,573	30,889	8,862	78,118	97.6	1,920	—7,115	—22,968	—4,216
	2 mos.	99	149,889	3,421	172,555	34,799	20,185	12,299	64,361	16,919	151,297	87.7	21,258	3,183	—32,526	13,893
Kansas, Oklahoma & Gulf	Feb.	326	135,668	493	139,076	13,587	15,665	10,534	36,524	8,354	84,664	60.9	54,416	34,846	21,559	51,773
	2 mos.	326	306,273	1,138	313,450	26,252	32,221	20,801	80,687	17,546	177,491	56.6	135,959	96,693	67,811	104,407
Lake Superior & Ishpeming	Feb.	160	26,893	101	28,630	14,543	15,970	581	17,497	5,823	54,414	190.1	—25,784	—40,781	—42,170	—53,449
	2 mos.	160	50,318	218	53,960	29,435	32,033	1,173	35,502	13,080	111,223	206.1	—57,263	—87,257	—89,713	—110,247
Lake Terminal	Feb.	12	.....	.....	18,597	1,539	3,914	.....	12,955	2,079	20,487	110.2	—1,890	—5,470	—6,119	—11,655
	2 mos.	12	.....	.....	40,744	3,746	7,901	.....	29,374	4,225	45,246	111.0	—4,502	—11,662	—12,543	—23,658
Lehigh & Hudson River	Feb.	96	115,234	347	124,282	38,853	22,246	3,209	47,936	8,447	120,691	97.1	3,591	—5,515	—18,689	19,887
	2 mos.	96	246,874	862	266,255	52,179	47,490	6,400	99,561	17,148	222,778	83.7	43,477	21,437	—6,585	33,822
Lehigh & New England	Feb.	216	254,360	524	258,008	26,652	63,242	5,043	94,271	19,322	208,495	80.8	49,513	40,324	52,256	73,457
	2 mos.	216	522,776	1,050	529,857	54,039	125,588	9,697	198,051	38,405	425,740	80.3	104,117	85,381	108,262	162,527
Lehigh Valley	Feb.	1,361	2,767,788	253,399	3,309,521	200,761	729,961	118,270	1,441,768	131,808	2,645,665	79.9	663,856	397,231	295,591	358,196
	2 mos.	1,361	5,455,350	527,253	6,566,993	421,478	1,575,822	234,682	3,061,631	263,468	5,592,022	85.2	974,971	440,588	240,479	922,999
Louisiana & Arkansas	Feb.	608	300,160	7,938	332,812	54,189	55,113	20,557	95,509	20,806	244,386	73.4	88,426	45,626	45,507	67,836
	2 mos.	608	649,634	17,124	727,571	110,082	115,636	44,034	203,676	45,520	517,481	71.1	210,090	124,436	113,505	119,029
Louisiana, Arkansas & Texas	Feb.	202	44,360	386	48,805	10,610	6,186	2,186	20,035	3,877	42,741	87.6	6,064	3,062	—3,484	—11,337
	2 mos.	202	89,558	847	97,464	25,904	13,153	5,879	39,767	7,685	92,235	94.6	5,229	—577	—11,961	—10,781

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How Many of Your Locomotives Are Guilty?

EVERY locomotive eight years of age or older should be indicted . . . placed on trial . . . and be required to prove that it is innocent of wasting operating dollars.

The greatly increased efficiency of modern motive power makes it apparent that the burden of proof of satisfactory performance should be placed on every locomotive; for equipment may be young in years and yet be outmoded from the standpoint of operating efficiency.

When traffic is light, only the most efficient locomotive is worthy of its keep. In fact, with the present strict regulations and with highway and waterway competition, modern, efficient motive power is one of the most essential factors in turning gross railway operating revenue into net. And, there is no better time than the present to check up your motive power and make sure that every locomotive in service or to be placed in service will earn its keep through efficient operation.

—THE EDITOR

THE above is a replica of the statement which appeared on the March front cover of Railway Mechanical Engineer.

The American Locomotive Company feels that this message is so timely, so fundamentally sound, and so in agreement with what it has been preaching, that it places it, with great satisfaction, before the readers of Railway Age.

American Locomotive Company
30 Church Street New York N.Y.

Revenues and Expenses of Railways

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1932—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1931.
Louisville & Nashville	Feb.	5,263	$4,594,260	$455,431	$5,480,632	$886,585	$1,216,782	$193,775	$2,067,586	$295,634	$4,686,958	85.5	$793,674	$342,090	$359,356	$315,306
	2 mos.	5,263	9,266,635	1,014,067	11,173,414	1,832,987	2,528,822	404,347	4,439,625	615,089	9,881,985	88.4	1,291,429	387,964	439,194	1,162,609
Maine Central	Feb.	1,121	751,200	104,665	946,057	142,086	160,846	16,056	394,295	39,838	753,092	79.6	192,965	140,668	104,026	126,149
	2 mos.	1,121	1,492,490	222,318	1,900,736	307,096	340,957	33,701	851,198	85,826	1,618,673	85.2	282,063	165,750	84,272	279,140
Midland Valley	Feb.	363	117,340	678	122,124	15,136	16,782	4,632	33,303	7,874	77,727	63.6	44,397	32,546	22,612	24,593
	2 mos.	363	258,401	1,725	269,133	30,936	35,953	8,833	75,541	16,340	167,598	62.3	101,535	77,711	58,839	71,041
Minneapolis & St. Louis	Feb.	1,627	566,836	24,186	639,503	54,176	133,932	32,324	321,443	38,182	579,867	90.7	59,636	19,841	—11,258	—95,429
	2 mos.	1,627	1,125,694	53,782	1,272,839	113,620	284,358	67,403	684,926	80,667	1,230,230	96.7	42,609	—43,929	—92,925	—141,474
Minneapolis, St. Paul & S. S. Marie	Feb.	4,349	1,305,717	112,573	1,566,648	228,358	464,338	65,223	832,068	107,354	1,700,445	108.5	—133,797	—317,623	—432,218	—117,672
	2 mos.	4,349	2,608,792	234,790	3,143,049	458,168	888,318	129,557	1,732,867	218,762	3,437,770	109.4	—294,721	—675,665	913,096	294,653
Duluth, South Shore & Atlantic	Feb.	560	106,428	13,517	134,123	26,670	33,492	6,803	76,119	7,936	152,373	113.6	—18,250	—48,250	—49,988	—11,226
	2 mos.	560	206,876	34,163	270,005	53,262	71,500	14,283	157,766	18,801	318,639	118.0	—48,634	—108,634	—113,091	—11,212
Spokane International	Feb.	163	38,766	3,565	46,523	19,626	5,118	2,849	23,465	4,829	56,511	121.5	—9,988	—15,027	—18,048	—5,547
	2 mos.	163	77,389	6,061	91,850	32,010	10,622	6,168	47,552	9,766	107,316	116.8	—15,466	—25,544	—32,093	—8,545
Mississippi Central	Feb.	150	44,030	1,182	47,286	10,728	21,417	8,438	20,140	6,007	66,730	141.1	—19,444	—23,165	—27,189	—2,757
	2 mos.	150	95,646	2,661	102,590	21,506	33,612	17,069	40,710	12,136	125,033	121.9	—22,443	—29,937	—37,892	4,014
Missouri & North Arkansas	Feb.	364	72,321	1,588	78,970	15,693	13,443	7,742	33,518	7,797	77,940	98.7	1,030	—1,551	—10,425	—12,680
	2 mos.	364	150,880	2,532	163,552	30,732	24,962	16,722	70,170	16,129	157,994	96.6	5,558	542	—18,398	—40,473
Missouri-Illinois	Feb.	202	69,166	488	71,100	11,700	13,595	3,108	23,758	5,659	57,814	81.3	13,286	7,941	1,814	847
	2 mos.	202	139,562	1,094	143,958	23,316	27,324	6,760	50,937	11,743	120,071	83.4	23,887	13,148	—2,097	2,912
Missouri-Kansas-Texas Lines	Feb.	3,188	1,752,439	188,298	2,165,618	258,155	328,753	116,838	778,962	136,988	1,635,970	75.5	529,648	320,611	175,121	71,951
	2 mos.	3,188	3,600,268	415,347	4,472,562	522,125	670,212	240,342	1,672,903	273,727	3,412,302	76.3	1,060,260	652,257	358,252	427,013
Missouri Pacific	Feb.	7,436	4,942,882	419,627	5,899,464	625,062	1,081,507	252,335	2,340,164	305,245	4,630,982	78.5	1,268,482	842,810	518,654	1,389,936
	2 mos.	7,436	9,881,290	905,278	11,877,408	1,214,915	2,266,177	498,857	4,949,928	608,232	9,597,908	80.8	2,279,500	1,429,484	838,883	2,801,499
Gulf Coast Lines	Feb.	1,030	810,939	47,698	900,038	100,637	137,111	40,310	221,913	49,439	550,385	61.15	349,653	300,721	191,333	87,114
	2 mos.	1,030	1,598,832	93,456	1,784,635	209,835	291,165	78,145	472,172	95,542	1,148,186	64.34	636,449	538,402	343,286	272,550
International Great Northern	Feb.	1,159	699,180	74,778	870,222	140,909	178,182	34,118	372,981	53,547	791,323	90.93	78,899	36,181	—55,983	118,857
	2 mos.	1,159	1,438,904	149,648	1,781,800	284,088	362,554	65,623	797,295	109,748	1,637,303	91.89	144,497	58,181	—119,383	80,796
San Antonio, Uvalde & Gulf	Feb.	316	108,478	6,434	122,210	22,243	12,211	5,006	27,016	5,513	72,018	58.9	50,192	45,680	17,755	27,812
	2 mos.	316	203,644	12,850	228,653	43,930	25,984	10,194	52,360	11,023	143,137	62.6	85,516	76,420	20,952	43,347
Mobile & Ohio	Feb.	1,152	568,958	23,154	630,968	93,900	127,744	43,422	279,314	39,453	580,575	92.0	50,393	—9,505	—55,720	—17,831
	2 mos.	1,152	1,139,313	51,015	1,265,839	197,846	254,347	92,469	600,049	85,633	1,227,883	97.0	37,956	—81,773	—184,035	—15,187
Monongahela	Feb.	177	306,246	1,159	308,960	40,000	40,000	1,267	73,468	8,724	163,459	52.9	145,501	132,053	62,139	86,097
	2 mos.	177	627,130	2,635	633,942	80,000	80,000	2,562	153,280	17,399	333,241	52.6	300,701	273,860	129,063	180,065
Monongahela Connecting	Feb.	6	.....	.....	40,858	8,597	23,098	250	31,060	2,509	65,514	160.3	—24,656	—29,874	—30,082	—5,117
	2 mos.	6	.....	.....	90,714	15,223	47,751	500	64,633	5,232	133,339	147.0	—42,625	—53,105	—53,360	—15,071
Montour	Feb.	57	122,460	.....	122,548	10,174	34,093	1,448	31,234	7,150	84,099	68.6	38,449	36,406	54,622	61,980
	2 mos.	57	241,244	.....	241,942	21,233	73,103	2,873	62,665	14,117	173,991	71.9	67,951	63,864	99,360	142,752
Nashville, Chatt. & St. Louis	Feb.	1,203	788,858	82,903	974,187	147,808	216,158	63,583	402,582	61,205	894,775	91.8	79,412	37,165	29,766	47,216
	2 mos.	1,203	1,595,880	181,670	2,012,010	306,143	443,500	132,326	860,271	124,396	1,878,213	93.4	133,797	49,130	29,925	89,498
Nevada Northern	Feb.	165	23,086	3,142	31,227	9,641	5,051	808	10,630	3,563	29,693	95.1	1,534	—6,360	—3,422	3,344
	2 mos.	165	46,888	5,708	62,659	19,167	10,313	1,650	21,663	7,229	60,022	95.8	2,637	—13,963	—8,135	2,103
Newburgh & South Shore	Feb.	6	.....	.....	64,496	7,313	20,116	.....	28,065	5,607	61,101	94.7	3,395	—8,094	—3,830	—9,476
	2 mos.	6	.....	.....	111,881	13,018	39,133	.....	59,619	11,978	123,748	110.6	—11,867	—34,846	—28,568	—43,964
New Orleans Great Northern	Feb.	264	120,825	8,928	135,339	12,826	19,248	13,629	46,874	8,267	100,844	74.5	34,495	23,777	—2,224	16,821
	2 mos.	264	261,193	17,126	288,782	27,400	36,179	24,284	102,724	16,339	206,926	71.7	81,856	61,089	12,978	30,174
New Orleans Terminal	Feb.	20	Dr. 437	.....	109,059	15,993	6,693	.....	26,390	1,413	50,489	46.3	58,570	47,006	34,881	—9,832
	2 mos.	20	2,029	.....	216,754	28,704	14,795	.....	61,843	2,691	108,033	49.8	108,721	85,584	57,556	9,701
New York Central	Feb.	11,517	17,379,095	5,419,662	26,154,376	2,509,891	5,077,826	605,669	9,774,884	1,137,498	19,484,489	74.5	6,669,887	3,962,543	2,679,318	1,560,589
	2 mos.	11,450	34,442,615	11,706,434	52,909,111	5,317,694	10,446,314	1,272,978	20,764,816	2,383,434	41,019,969	77.5	11,889,142	6,434,040	3,886,462	3,428,634
Indiana Harbor Belt	Feb.	118	.....	.....	620,033	68,000	67,000	4,092	262,206	21,806	443,038	71.5	176,995	136,820	95,462	88,807
	2 mos.	118	.....	.....	1,276,303	136,000	134,000	8,843	547,543	46,320	918,701	72.0	357,602	276,623	193,528	206,174
Pittsburgh & Lake Erie	Feb.	235	928,490	65,395	1,026,400	81,706	352,134	30,205	404,422	65,119	936,587	91.3	89,813	3,194	128,498	288,191
	2 mos.	235	1,913,590	142,584	2,120,516	179,673	705,497	56,199	867,278	131,636	1,945,911	91.8	174,605	—1,551	263,967	609,343
New York, Chicago & St. Louis	Feb.	1,698	2,367,658	68,401	2,542,024	292,273	420,867	109,475	952,812	126,801	1,898,851	74.7	643,173	433,234	216,050	15,480
	2 mos.	1,698	4,715,053	155,747	5,069,289	552,527	850,736	221,374	2,003,128	253,107	3,876,611	76.5	1,192,678	770,067	275,766	196,714

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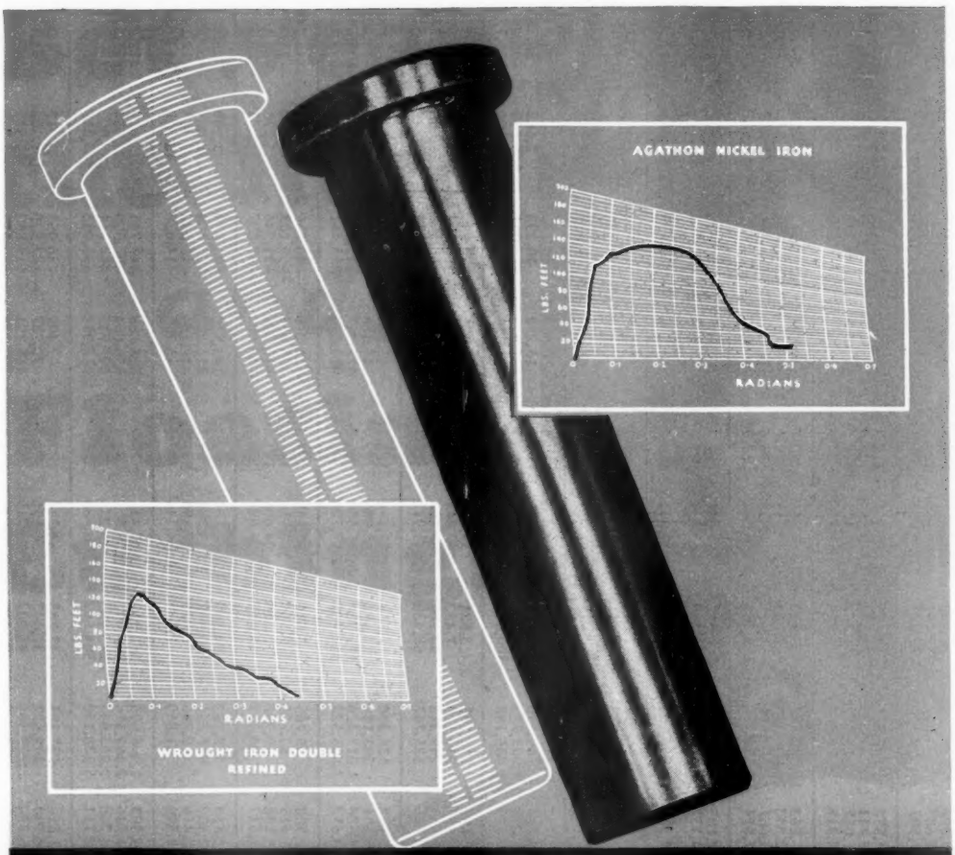

TOUGH AS WELL AS HARD

AGATHON NICKEL IRON COMBINES BOTH QUALITIES NEEDED FOR HARDENED PINS

Case hardened pins for motion work, brake and spring rigging must stand shock. Not only must they be hard; they must also be tough. « How well Agathon Nickel Iron backs up a hard case with a tough core is shown by these charts. « The Humphrey Machine which produced these charts, bends the full section to the breaking point of the case and then to final rupture. The first break in the line indicates the point at which the case was first cracked; the rest of the curve shows the resistance of the core to rupture. The core of the wrought iron shows rapidly diminishing resistance as the angle of bending increases. « Agathon Nickel Iron, on the other hand, shows stubborn resistance even after the case is broken. The core is tougher and uniform in composition. « Use this modern alloy iron for all case-hardened pins and bushings.

AGATHON NICKEL IRON

Toncan Iron Boiler Tubes, Pipe, Plates, Culverts, Rivets, Staybolts, Tender Plates and Firebox Sheets Sheets and Strip for special railroad purposes Agathon Alloy Steels for Locomotive Parts • Agathon Engine Bolt Steel • Nitralloy • Agathon Iron for Pins and Bushings • Agathon Staybolt Iron Climax Steel Staybolts • Upson Bolts and Nuts Track Material, Maney Guard Rail Assemblies Enduro Stainless Steel for dining car equipment, for refrigeration cars and for firebox sheets Agathon Nickel Forging Steel(20-27 Carbon)

CENTRAL ALLOY DIVISION

REPUBLIC STEEL CORPORATION

MASSILLON OHIO

Revenues and Expenses of Railways

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1932—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1931.
N. Y., New Haven & Hartford	Feb.	2,082	$3,607,367	$2,327,540	$6,753,457	$716,543	$1,058,467	$82,153	$2,342,225	$239,299	$4,576,282	67.8	$2,177,175	$1,676,949	$1,169,205	$1,394,171
	2 mos.	2,082	7,361,486	4,749,268	13,762,205	1,579,494	2,105,368	171,499	4,954,397	519,882	9,618,453	69.9	4,143,752	3,143,469	2,097,920	2,777,510
New York Connecting	Feb.	20	178,597	.....	191,425	3,755	4,376	.....	30,459	921	39,511	20.6	151,914	115,914	77,983	63,776
	2 mos.	20	376,760	.....	400,425	17,002	14,667	.....	66,578	2,031	100,278	25.0	300,147	228,147	155,377	133,827
New York, Ontario & Western	Feb.	568	682,852	20,777	829,506	67,240	143,060	13,468	317,168	25,629	572,023	69.0	257,483	212,474	152,666	84,736
	2 mos.	568	1,348,183	38,635	1,651,231	146,854	284,905	28,128	670,328	54,060	1,195,449	72.4	455,782	365,734	234,722	164,303
Norfolk & Western	Feb.	2,268	4,802,108	138,131	5,123,985	578,185	1,229,523	112,151	1,371,402	268,330	3,572,397	69.7	1,551,588	926,538	1,004,373	1,387,625
	2 mos.	2,268	9,582,475	302,651	10,276,385	1,206,301	2,445,451	234,368	2,934,984	529,516	7,400,026	72.0	2,876,359	1,575,190	1,747,438	3,066,308
Norfolk Southern	Feb.	932	277,560	8,072	304,629	67,303	62,450	20,956	152,678	20,131	323,518	106.2	—18,889	—61,607	—70,494	—22,140
	2 mos.	932	570,647	16,869	627,359	135,465	122,603	42,306	326,181	41,920	668,464	106.6	—41,105	—127,691	—145,510	—40,936
Northern Pacific	Feb.	6,735	2,711,917	300,570	3,393,817	443,367	1,048,311	152,607	1,593,842	252,481	3,546,618	104.5	—152,801	—760,616	—519,899	—151,602
	2 mos.	6,735	5,422,930	628,069	6,816,010	737,135	2,082,003	317,597	3,402,310	572,021	7,186,990	105.4	—370,980	—1,590,145	—1,075,156	—73,852
Northwestern Pacific	Feb.	441	116,243	86,267	228,785	53,439	48,536	4,572	137,375	14,881	258,405	112.9	—29,620	—60,438	—73,076	—122,531
	2 mos.	441	220,927	167,393	445,467	115,625	101,004	8,411	287,079	31,303	542,954	121.9	—97,487	—159,218	—176,987	—246,459
Oklahoma City-Ada-Atoka	Feb.	132	32,711	502	35,316	6,889	2,641	1,057	13,152	1,762	25,473	72.1	9,843	5,394	—2,920	—6,834
	2 mos.	132	63,945	1,241	69,496	14,564	4,920	2,318	26,188	3,874	51,825	74.6	17,671	8,679	—7,134	—4,511
Pennsylvania Railroad	Feb.	10,897	20,184,331	5,511,528	28,753,437	2,586,094	6,118,676	695,062	11,280,886	1,528,700	22,618,843	78.7	6,134,594	4,219,345	3,302,108	2,697,374
	2 mos.	10,897	40,897,979	11,828,895	58,968,607	5,188,936	12,665,244	1,352,313	23,698,174	3,092,651	46,849,668	79.4	12,118,939	8,387,307	6,532,835	6,078,131
Long Island	Feb.	404	592,215	1,506,233	2,209,244	232,006	365,852	13,667	1,022,810	58,751	1,692,858	76.6	516,386	415,374	245,312	348,823
	2 mos.	404	1,165,346	3,154,732	4,557,115	488,140	754,279	27,874	2,159,970	118,353	3,548,017	77.9	1,009,098	802,480	458,501	747,653
Peoria & Pekin Union	Feb.	17	7,674	.....	76,024	5,604	6,880	2,105	37,440	7,018	59,047	77.7	16,977	477	19,159	45,483
	2 mos.	17	15,120	Dr. 2	151,496	14,425	13,741	4,137	76,391	14,449	123,143	81.3	28,353	—4,058	33,795	83,276
Pere Marquette	Feb.	2,266	1,685,490	68,988	1,855,593	253,811	396,100	62,739	748,263	104,942	1,572,145	84.7	283,448	127,324	164,524	113,704
	2 mos.	2,266	3,395,524	149,904	3,754,711	512,911	813,202	122,178	1,569,984	211,014	3,243,003	86.4	511,708	196,484	133,658	—12,565
Pittsburgh & Shawmut	Feb.	102	55,929	839	57,283	11,320	22,776	1,446	16,217	3,979	55,738	97.3	1,545	479	1,617	7,757
	2 mos.	102	115,335	1,759	118,271	23,322	46,121	3,207	34,373	8,515	115,538	97.7	2,733	605	3,101	18,772
Pittsburgh & West Virginia	Feb.	138	170,790	118	187,694	17,171	59,508	15,087	40,072	14,875	153,485	81.8	34,209	7,546	21,927	59,202
	2 mos.	138	352,020	247	385,347	38,436	120,449	30,717	84,283	29,659	317,530	82.4	67,817	14,514	41,823	121,481
Pittsburgh, Shawmut & Northern	Feb.	197	78,462	232	81,492	14,073	21,738	1,527	31,030	6,484	74,852	91.8	6,640	4,172	300	20,942
	2 mos.	197	165,467	525	171,765	30,761	38,864	3,314	69,650	13,926	156,515	91.1	15,250	10,292	2,666	38,283
Reading	Feb.	1,459	4,026,414	321,347	4,716,329	536,209	1,150,545	75,298	1,908,702	191,627	3,883,690	82.3	832,639	612,041	555,869	406,997
	2 mos.	1,459	8,072,127	659,953	9,456,745	981,063	2,392,671	159,320	4,035,188	409,610	8,021,587	84.8	1,435,158	1,093,142	1,025,796	1,091,776
Atlantic City	Feb.	163	82,210	33,813	123,850	26,835	14,921	2,595	111,168	3,821	159,531	128.8	—35,681	—75,641	—78,332	—114,271
	6 mos.	163	150,784	71,759	239,279	62,517	31,630	5,615	240,110	7,422	347,843	145.4	—108,564	—188,484	—196,817	—251,979
Richmond, Fredericksburg & Potomac	Feb.	117	367,541	185,509	685,793	68,200	133,698	8,519	249,382	32,101	507,494	74.0	178,299	140,596	71,696	166,374
	2 mos.	117	711,932	376,310	1,349,794	115,432	275,744	17,970	525,767	68,436	1,031,913	76.4	317,881	245,978	121,514	306,819
Rutland	Feb.	413	185,306	44,075	318,666	50,871	65,007	9,142	136,220	13,518	273,144	85.7	45,522	23,224	28,540	—639
	2 mos.	413	350,856	94,822	626,518	106,774	133,870	20,801	293,159	28,883	581,980	92.9	44,538	624	11,296	—18,205
St. Louis-San Francisco	Feb.	5,266	2,687,691	263,162	3,247,097	469,835	785,441	104,686	1,217,326	172,580	2,767,450	85.2	479,647	125,926	74,455	833,648
	2 mos.	5,266	5,484,827	598,825	6,681,642	958,594	1,597,116	214,672	2,605,523	352,407	5,767,794	86.3	913,848	255,461	145,321	1,499,167
Ft. Worth & Rio Grande	Feb.	233	18,746	2,199	26,934	21,022	11,652	2,900	23,765	3,810	63,149	234.5	—36,215	—40,830	—47,791	—44,344
	2 mos.	233	49,590	4,098	65,897	36,390	23,785	5,615	52,729	7,564	125,950	191.1	—60,053	—69,322	—83,190	—75,303
St. Louis, San Francisco & Texas	Feb.	262	73,856	203	77,883	20,109	20,663	5,638	40,982	7,229	94,606	121.5	—16,723	—21,246	—51,273	—43,407
	2 mos.	262	151,305	2,368	162,193	44,769	41,096	11,517	94,112	15,412	206,887	127.6	—44,694	—53,697	—117,271	—67,397
St. Louis Southwestern Lines	Feb.	1,913	965,527	19,935	1,058,635	146,397	176,093	82,410	378,582	74,504	865,105	81.7	193,530	103,954	7,207	—6,326
	2 mos.	1,913	1,965,030	44,919	2,155,573	307,315	379,168	162,602	817,236	150,947	1,839,366	85.3	316,207	137,160	—58,801	—63,387
San Diego & Arizona	Feb.	155	19,133	3,868	26,432	6,769	11,915	2,416	12,996	2,875	37,196	140.7	—10,764	—15,222	—15,404	4,158
	2 mos.	155	59,752	14,594	78,429	15,445	23,195	4,890	31,850	7,795	84,144	107.3	—5,715	—14,628	—13,749	13,643
Seaboard Air Line	Feb.	4,449	2,468,485	331,474	3,125,724	460,492	591,323	156,393	1,098,693	151,337	2,497,436	79.9	628,288	347,745	212,619	412,271
	2 mos.	4,456	4,880,520	683,617	6,195,389	944,596	1,197,433	324,746	2,363,516	317,492	5,239,305	84.6	956,084	497,899	225,034	651,372
Southern Ry.	Feb.	6,724	5,066,751	687,873	6,283,951	905,585	1,429,986	168,260	2,453,663	285,483	5,286,234	84.1	997,717	444,351	282,092	342,492
	2 mos.	6,724	10,256,107	1,472,176	12,811,912	1,930,714	2,962,770	350,711	5,138,150	584,562	11,063,980	86.4	1,747,932	630,933	306,317	762,730
Alabama Great Southern	Feb.	315	264,829	41,978	336,937	63,234	110,709	11,610	137,181	17,785	344,346	102.2	—7,409	—46,053	—43,017	—21,773
	2 mos.	315	549,497	86,793	699,364	143,159	224,344	24,990	292,677	37,447	730,101	104.4	—30,737	—107,820	—104,306	—11,378
Cinn., New Orleans & Texas Pacific	Feb.	337	760,734	72,996	891,110	144,931	245,671	26,954	257,365	45,307	725,719	81.4	165,391	114,888	127,515	81,580
	2 mos.	337	1,540,130	163,950	1,821,116	293,706	507,728	52,703	559,873	95,489	1,521,957	83.6	299,159	189,615	207,508	239,690

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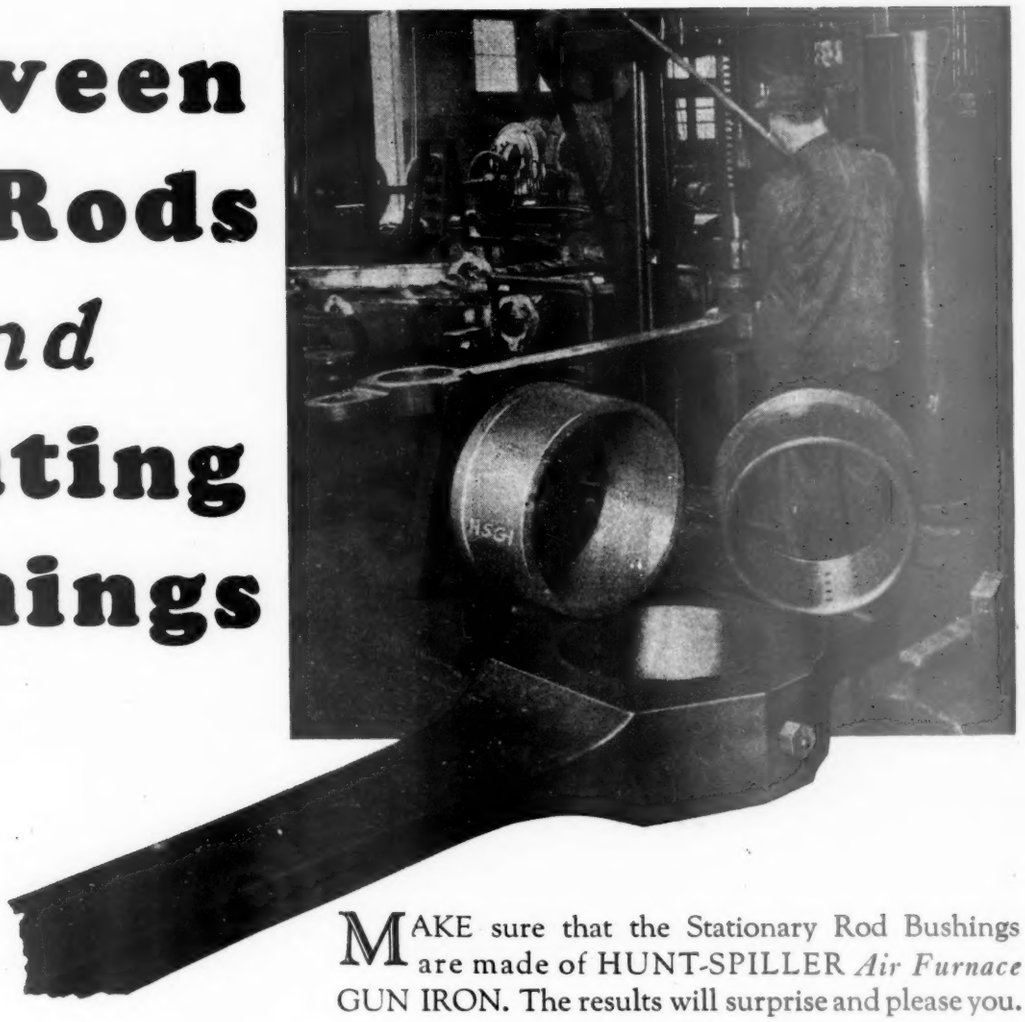
Between the Rods *and* Floating Bushings



MAKE sure that the Stationary Rod Bushings are made of HUNT-SPILLER *Air Furnace* GUN IRON. The results will surprise and please you.

Performance reports will show less trouble with hot pins, fewer failures and lower rod maintenance costs.

Floating rod brasses will heat less rapidly, wear more uniformly and give longer service when they revolve inside of HUNT-SPILLER *Air Furnace* GUN IRON Rod Bushings.

The increased bushing mileage alone justifies application.

HUNT-SPILLER MFG. CORPORATION

J. G. Platt, Pres. & Gen. Mgr. — V. W. Ellet, Vice-President.

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Cylinder Bushings
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Shoes and Wedges
Floating Rod Bushings

Parts Finished for Application

Dunbar Sectional Type Packing
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(Duplex Springs for Above Sectional Packing)
Cylinder Snap Rings
Valve Rings All Shapes

HUNT-SPILLER GUN IRON

Air Furnace

Revenues and Expenses of Railways

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1932—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1931.
Georgia Southern & Florida	Feb.	397	$128,534	$33,145	$177,965	$36,551	$44,890	$1,635	$63,357	$2,402	$152,131	85.5	$25,834	$8,776	$15,005	$32,520
	2 mos.	397	256,647	68,430	359,033	79,930	92,022	3,410	139,207	4,801	326,819	91.0	32,214	—4,700	12,382	61,093
New Orleans & Northeastern	Feb.	204	136,216	25,932	175,048	37,872	48,496	6,405	68,941	10,016	173,599	99.2	1,449	—29,571	—42,184	—41,504
	2 mos.	204	298,960	48,815	373,963	74,502	100,541	13,937	146,697	21,667	361,294	96.6	12,669	—49,363	—78,318	—99,377
Northern Alabama	Feb.	99	41,586	642	43,795	10,952	1,227	1,185	13,930	2,469	29,761	68.0	14,034	8,914	—4,557	—14,204
	2 mos.	102	87,388	1,595	92,042	24,686	3,000	2,504	32,281	5,062	67,531	73.4	24,511	14,299	—14,519	—19,488
Southern Pacific	Feb.	9,111	5,810,912	1,668,457	8,298,469	983,976	1,641,708	301,498	3,269,139	553,473	6,952,208	83.8	1,346,261	207,900	—24,917	610,354
	2 mos.	9,112	11,999,886	3,549,841	17,264,714	2,024,117	3,398,506	591,796	7,049,426	1,127,824	14,621,942	84.7	2,642,772	487,148	—58,088	1,280,289
So. Pac. Steamship Lines	Feb.	....	335,473	22,877	379,766	14,237	136,061	17,521	296,333	28,830	492,982	129.8	—113,216	—114,389	—114,521	—103,529
	2 mos.	....	687,193	44,244	774,145	27,825	272,759	36,367	613,300	55,285	1,005,536	129.9	—231,391	—233,400	—233,064	—240,078
Texas & New Orleans	Feb.	4,625	1,967,608	303,253	2,610,477	478,351	576,432	128,183	1,011,766	228,161	2,434,934	93.3	175,543	—101,352	—263,117	—95,000
	2 mos.	4,630	4,149,812	637,185	5,465,748	978,791	1,177,956	260,569	2,161,828	459,856	5,068,287	92.7	397,461	—154,560	—515,018	—89,624
Spokane, Portland & Seattle	Feb.	555	284,792	30,954	360,368	39,201	64,225	9,808	141,006	20,903	276,320	76.7	84,048	7,258	497	7,320
	2 mos.	555	597,074	68,532	750,577	85,832	128,280	20,820	298,888	44,534	580,473	77.3	170,104	11,369	559	36,674
Tennessee Central	Feb.	295	146,587	4,276	159,441	26,761	22,297	7,530	61,842	12,221	130,275	81.7	29,166	24,969	13,277	13,104
	2 mos.	295	309,502	9,147	336,538	53,363	44,812	15,090	133,271	24,949	270,988	80.5	65,550	56,204	32,371	14,892
Terminal R. R. Assn. of St. Louis	Feb.	55	.....	.....	478,108	62,145	36,390	3,961	247,706	19,226	372,091	77.8	106,017	19,265	86,523	105,032
	2 mos.	55	.....	.....	1,003,598	117,397	67,373	8,181	522,998	38,762	760,181	75.7	243,417	69,862	205,603	230,988
Texas & Pacific	Feb.	1,950	1,216,328	208,480	1,623,860	179,382	302,723	76,668	561,358	112,247	1,250,856	77.0	373,004	254,767	135,614	331,914
	2 mos.	1,950	2,654,978	428,711	3,485,546	351,027	652,388	147,344	1,221,933	224,870	2,629,165	75.4	856,381	620,594	375,678	653,616
Texas Mexican	Feb.	162	38,424	842	43,047	9,231	10,268	3,907	19,104	6,394	48,904	113.6	—5,857	—11,091	—13,151	—2,085
	2 mos.	162	83,501	1,679	94,148	20,416	19,809	6,486	39,672	13,104	99,486	105.7	—5,338	—15,916	—22,137	—40,378
Toledo, Peoria & Western	Feb.	239	110,248	69	112,201	25,414	9,316	12,092	39,476	7,195	93,493	83.3	18,708	15,432	7,472	11,513
	2 mos.	239	204,952	136	209,270	46,042	17,766	24,399	78,376	14,752	181,335	86.7	27,935	23,048	8,103	30,225
Toledo Terminal	Feb.	28	.....	.....	74,598	3,744	11,537	502	34,404	4,496	54,683	73.3	19,915	8,593	25,892	33,605
	2 mos.	28	.....	.....	148,021	6,832	24,346	1,037	65,931	9,090	107,236	72.4	40,785	17,630	51,915	73,497
Ulster & Delaware	Feb.	....	Will not file—Class II Company													
	2 mos.	....	Will not file—Class II Company													
Union R. R. of Penna.	Feb.	45	.....	.....	187,560	37,379	104,859	130	111,970	13,903	268,241	143.0	—80,681	—88,181	—56,022	—32,507
	2 mos.	45	.....	.....	401,218	67,686	216,460	290	244,254	28,715	557,405	138.9	—156,187	—171,187	—121,756	—80,430
Union Pacific	Feb.	3,768	3,778,396	481,548	4,767,012	257,690	1,050,818	117,768	1,681,699	302,152	3,486,713	73.1	1,280,299	797,620	707,035	871,389
	2 mos.	3,768	7,771,453	1,049,614	9,887,555	565,657	2,162,497	249,330	3,590,806	641,281	7,372,681	74.6	2,514,874	1,533,427	1,322,390	2,077,593
Oregon Short Line	Feb.	2,505	1,406,022	132,454	1,695,182	172,015	258,101	43,721	599,939	105,258	1,228,103	72.4	467,079	213,783	140,968	164,924
	2 mos.	2,505	2,878,832	276,851	3,458,133	321,758	540,589	92,219	1,276,519	224,557	2,541,703	73.5	916,430	409,495	261,369	505,915
Oregon-Wash. R. R. & Nav. Co.	Feb.	2,338	885,462	103,848	1,110,932	135,276	176,458	55,922	521,120	100,876	998,138	89.8	112,794	—44,361	—135,034	—274,500
	2 mos.	2,338	1,774,768	213,426	2,243,507	279,430	351,974	120,899	1,099,345	213,255	2,084,047	92.9	159,460	—155,032	—338,861	—388,526
Los Angeles & Salt Lake	Feb.	1,249	1,035,133	139,120	1,277,979	118,707	191,738	51,605	429,517	68,931	893,596	69.9	384,383	237,009	109,626	—103,857
	2 mos.	1,249	2,108,780	296,762	2,630,550	241,078	398,656	112,953	934,207	148,776	1,909,322	72.6	721,228	426,344	174,646	—109,313
St. Joseph & Grand Island	Feb.	258	169,077	3,526	181,212	17,688	23,161	2,669	62,709	14,383	120,610	66.6	60,602	46,658	31,031	55,878
	2 mos.	258	346,338	7,904	372,027	34,903	47,256	5,269	133,431	30,162	251,021	67.5	121,006	92,953	60,859	94,461
Utah	Feb.	111	152,844	.....	153,779	14,816	31,880	455	32,783	5,459	85,393	55.5	68,386	53,480	38,090	4,488
	2 mos.	111	312,659	.....	314,587	30,013	62,670	859	72,408	10,811	176,761	56.2	137,826	106,668	75,465	59,459
Virginian	Feb.	608	1,175,858	7,486	1,250,593	104,763	226,943	15,247	229,996	28,427	605,311	48.4	645,282	485,257	550,982	430,473
	2 mos.	608	2,277,216	16,811	2,421,298	217,249	434,209	30,986	480,848	57,007	1,220,139	50.4	1,201,159	891,134	1,016,015	1,038,213
Wabash	Feb.	2,523	2,656,552	210,853	3,098,194	364,929	565,658	165,412	1,363,781	167,418	2,641,221	85.3	456,973	246,992	—107,858	131,759
	2 mos.	2,523	5,314,523	460,822	6,253,935	822,491	1,131,368	331,491	2,953,419	361,154	5,629,800	90.0	624,135	203,691	—475,070	391,152
Ann Arbor	Feb.	293	256,488	3,103	267,584	35,496	51,410	13,035	120,660	12,533	233,161	87.1	34,423	12,756	—6,806	17,344
	2 mos.	293	496,469	7,482	519,692	66,268	95,759	26,969	252,455	24,066	465,616	89.6	54,076	10,452	—26,032	8,873
Western Maryland	Feb.	891	1,032,023	6,205	1,105,877	147,887	194,991	40,237	293,737	39,188	710,012	64.2	395,865	325,865	317,585	335,968
	2 mos.	891	2,115,972	13,422	2,257,863	322,771	386,591	83,052	604,702	81,543	1,475,001	65.3	782,862	642,862	629,113	793,468
Western Pacific	Feb.	1,051	672,117	27,893	733,018	119,482	172,781	58,821	406,295	39,314	809,932	110.5	—76,914	—171,366	—174,184	—124,678
	2 mos.	1,051	1,410,913	61,826	1,546,339	216,825	368,825	121,894	833,501	79,401	1,648,955	106.6	—102,616	—291,699	—293,571	—152,481
Wheeling & Lake Erie	Feb.	511	687,741	4,177	731,403	79,911	174,861	32,214	242,509	28,610	558,105	76.3	173,298	86,115	66,581	46,024
	2 mos.	511	1,344,434	8,984	1,428,260	156,227	361,452	65,801	501,520	59,463	1,144,463	80.1	283,797	111,032	73,645	99,175
Wichita Falls & Southern	Feb.	203	36,227	45	38,183	8,919	7,497	1,896	13,835	2,686	34,833	91.23	3,350	—816	—4,174	593
	2 mos.	203	75,023	114	78,374	18,254	15,403	3,751	28,370	6,137	71,915	91.76	6,459	—1,880	—10,144	—7,867

Annual Reports

Atchison, Topeka & Santa Fe Railway System

Office of the Atchison, Topeka and Santa Fe Railway System, 120 Broadway, New York City.

March 17, 1932.

To the Stockholders:

Your Directors submit the following report for the fiscal year January 1, 1931, to December 31, 1931, inclusive.

Income and Profit and Loss Statement

The following is a summary of the transactions of the System for the years ending December 31, 1930 and 1931:

	1930	1931
Operating revenues	$226,421,044.94	$181,181,260.58
Operating expenses	159,920,622.80	132,812,924.30
Net operating revenues	$ 66,500,422.14	$ 48,368,336.28
Railway tax accruals	18,280,551.52	15,038,205.52
Uncollectible railway revenues	40,592.67	53,319.51
Equipment and joint facility rents	3,302,811.53	1,827,537.56
Net railway operating income	$ 44,876,466.42	$ 31,449,273.69
Other income	5,716,570.03	5,084,637.41
Gross income	$ 50,593,036.45	$ 36,533,911.10
Miscellaneous tax accruals	62,947.74	114,334.29
Rent for leased roads and other charges	295,973.82	508,431.49
	$ 50,234,114.89	$ 35,911,145.32
Interest on bonds, including accrued interest on adjustment bonds	12,885,314.64	12,809,454.30
Net corporate income (representing amount available for dividends and surplus)	$ 37,348,800.25	$ 23,101,691.02
Surplus to credit of Profit and Loss, December 31, 1930		321,311,747.30
Total		$344,413,438.32
Appropriations for the year:		
DIVIDENDS ON PREFERRED STOCK—		
No. 66 (2½%) paid August 1, 1931	$3,104,320.00	
No. 67 (2½%) paid February 1, 1932	3,104,320.00	$ 6,208,640.00
DIVIDENDS ON COMMON STOCK—		
No. 104 (2½%) paid June 1, 1931	$6,067,575.00	
No. 105 (2½%) paid September 1, 1931	6,067,650.00	
No. 106 (2½%) paid December 1, 1931	6,067,650.00	
No. 107 (1½%) paid March 1, 1932	3,640,590.00	
	$21,843,465.00	
Less accrued dividends received on common stock issued in conversion of Convertible Debenture Bonds	1,599.78	21,841,865.22
California-Arizona Lines Bonds Sinking Fund		22,710.03
S. F. & S. J. V. Ry. Co. Bonds Sinking Fund		25,825.59
		28,099,040.84
		$316,314,397.48
Donations in connection with industry tracks, etc.	$ 214,362.57	
Miscellaneous credits—Net	5,610.98	$219,973.55
Surplus appropriated for investment in physical property—Debit		214,362.57
		5,610.98
Surplus to credit of Profit and Loss December 31, 1931		$316,320,008.46

"Other income" consists of interest accrued and dividends received on securities owned, including United States Government securities, interest on bank balances, rents from lease of road and other property, and other miscellaneous receipts.

Comparison of Operating Results

The following is a statement of revenues and expenses of the System for the year ending December 31, 1931, in comparison with the previous year:

	Year ending Dec. 31, 1931	Year ending Dec. 31, 1930	Increase or *Decrease*
OPERATING REVENUES:			
Freight	$143,624,008.07	$175,960,470.98	*$32,336,462.91*
Passenger	22,557,053.51	31,180,170.25	*8,623,116.74*
Mail, express, and miscellaneous	15,000,199.00	19,280,403.71	*4,280,204.71*
Total operating revenues	$181,181,260.58	$226,421,044.94	*$45,239,784.36*
OPERATING EXPENSES:			
Maintenance of way and structures	$ 23,825,471.99	$ 35,459,810.19	*$11,634,338.20*
Maintenance of equipment	39,822,045.92	45,402,804.05	*5,580,758.13*
Traffic	5,685,352.82	5,964,687.08	*279,334.26*
Transportation—Rail line	57,047,975.62	67,093,802.78	*10,045,827.16*
Miscellaneous operations	206,724.28	351,210.29	*144,486.01*
General	6,522,043.85	6,757,166.13	*235,122.28*
Transportation for investment—Cr.	*296,690.18*	*1,108,857.72*	812,167.54
Total operating expenses	$132,812,924.30	$159,920,622.80	*$27,107,698.50*
Net operating revenue	$ 48,368,336.28	$ 66,500,422.14	*$18,132,085.86*
Railway tax accruals	15,038,205.52	18,280,551.52	*3,242,346.00*
Uncollectible railway revenues	53,319.51	40,592.67	12,726.84
Railway operating income	$ 33,276,811.25	$ 48,179,277.95	*$14,902,466.70*
Equipment rents—Net—Dr.	990,617.12	2,504,120.35	*1,513,503.23*
Joint facility rents—Net—Dr.	836,920.44	798,691.18	38,229.26
Net railway operating income	$ 31,449,273.69	$ 44,876,466.42	*$13,427,192.73*

Credits in italics.

The following averages for 1931 compared with 1930 are deduced from tables set forth on pages 33 and 39.

The average tons of freight (revenue and company) per loaded car mile increased from 22.26 to 22.28, or .09 per cent.

The average tons of freight (revenue and company) carried per freight-train mile (freight and mixed) decreased from 709.33 to 655.11, or 7.64 per cent.

The average freight revenue per freight-train mile decreased from $7.66 to $6.99, or 8.75 per cent.

The average passenger revenue per passenger-train mile decreased from $1.31 to $1.04, or 20.61 per cent.

The average passenger-train revenue per passenger-train mile decreased from $1.92 to $1.57, or 18.23 per cent.

The tons of revenue and company freight carried one mile decreased 2,841,444,673, or 17.43 per cent, the miles run by loaded and empty freight and work cars in freight and mixed trains decreased 194,098,914, or 16.76 per cent, and the mileage of such trains decreased 2,435,728, or 10.60 per cent.

The number of revenue passengers carried one mile decreased 251,326,427 or 23.92 per cent, the miles run by passenger-train cars (excluding company service) in passenger and mixed trains decreased 24,286,045, or 12.75 per cent, and the mileage of such trains decreased 2,273,958, or 9.52 per cent.

Taxes

Federal, state, local, and miscellaneous railway tax accruals for the year 1931 aggregate $15,038,205.52 a decrease of $3,242,346.00 compared with the year 1930. A comparison of these accruals for the two years is presented in the following table:

	1931	1930	Increase or *decrease*
FEDERAL TAXES:			
Income	$ 1,400,430.42	$ 4,469,214.39	*$3,068,783.97*
Stamp and license	15,299.10	3,273.11	12,025.99
Total	$ 1,415,729.52	$ 4,472,487.50	*$3,056,757.98*
STATE, LOCAL, AND MISCELLANEOUS	13,622,476.00	13,808,064.02	*185,588.02*
Grand total	$15,038,205.52	$18,280,551.52	*$3,242,346.00*

Credits in italics.

General

During the past year conditions in the territory served by this Company were favorable, on the whole, from the standpoint of production in agriculture. This was preëminently true of wheat, the Kansas crop being by far the largest in its history, while both Oklahoma and Texas had large yields. Other grains did well, but broke no records. Grapes in California made about the poorest showing, due to excessive heat at critical times, but even so this crop was sufficient to meet the current demand. Citrus fruits made good yields and were in demand because of the unusually hot summer. Except for the low price, live-stock conditions were normal. Activity in mining, lumbering, oil production, building and general manufacturing was much curtailed, all of which greatly reduced traffic and as

a result gross earnings fell off 19.98 per cent from 1930.

There has been a considerable reduction in the acreage planted to winter wheat, and its general condition is below last year, especially in western Kansas and to a lesser extent in western Oklahoma and Texas, due to a dry fall. However, there has been abundant moisture all over our territory during the winter, and the water supply in Arizona and California is greater than for some years past.

Our program of additions and betterments for 1931 was confined to such projects as were immediately required, and new equipment was acquired only for replacements. No new equipment has been ordered for the current year, and capital expenditures will be considerably less than last year. The condition of roadway, structures, and equipment is being satisfactorily maintained, but a constant study is being made to effect every justifiable economy. In connection with roadway maintenance 362 miles of old rail were replaced with new. Of the new rail 337 miles were 110-lb. and 25 miles were 90-lb. Since the adoption of 110-lb. rail as standard for our transcontinental main lines 3,350 miles of this weight have been laid, and in addition 14 miles of 130-lb. rail. Our 1932 program covers 2 miles of 130-lb., 263 miles of 110-lb. and 9 miles of 90-lb.

Following an application of the railroads for a general increase in freight rates, to make up in part for the great loss in revenue sustained by the carriers, the Interstate Commerce Commission authorized certain limited increases with the proviso that these added revenues should be used for the benefit of railroads which would otherwise have to default in their interest payments. This has been worked out so that the added revenue up to March 31, 1933, will be turned over to an organization, styled The Railroad Credit Corporation, and will be loaned to needy railroads for not longer than two years except that the Corporation may renew any loan in its discretion for not exceeding two years. The plan contemplates that on liquidation of the Corporation all money will be returned to the contributing railroads with interest. While it is hoped that this will help stabilize the railroad industry, payments are just beginning to be made to the Corporation, so there has been no opportunity as yet to judge by results.

From time to time the Interstate Commerce Commission has recommended to Congress the repeal of the recapture provision of the Transportation Act, 1920 retroactive to its passage. The present Congress has taken up this question for serious consideration and Commissioner Eastman presented at one of the hearings a very clear statement of the general undesirability and lack of necessity of this provision from the public standpoint and its unfairness from the railroad standpoint. It is felt that such repeal would be beneficial from every standpoint.

To meet the decline in passenger travel trains have been discontinued so far as could be done without undue impairment of service and many steam trains have been replaced by gas-electric cars where these smaller carriers would suffice. In all, nearly 3,000,000 miles per annum of passenger train operation have been replaced with gas-electrics, and over 5,400,000 miles additional have been discontinued.

During the year 1931 your Company paid out in pensions to its retired employes $799,716.60, there being 1,546 pensioners on the roll at December 31, 1931, compared with $692,214.79 paid in 1930 and 1,412 pensioners December 31, 1930. The pensioners have an average service of 30 years with the Company and an average age of 67 years. During 1931 death benefits were paid in 376 cases, amounting to $431,808.75, compared with 433 cases, amounting to $514,377.88 in 1930. The average length of service in all cases in which death benefits were paid in 1931 was 19 years, the same as in 1930.

Your Directors take pleasure in again expressing their appreciation of faithful and efficient service rendered by officers and employes.

W. B. STOREY, *President.*

Chicago, Milwaukee, St. Paul and Pacific Railroad Company

Condensed Annual Report for the Year Ended December 31, 1931

To the Stockholders of the Chicago, Milwaukee, St. Paul and Pacific Railroad Company:

For the purpose of acquainting you promptly with the results of operations of the Chicago, Milwaukee, St. Paul and Pacific Railroad Company, for the year ended December 31, 1931, the Board submits the following condensed report:

Results of Operations

The unprecedented industrial depression which began in the latter part of 1929 continued with increasing severity throughout 1931. Because of this, aggravated by the unusual drought last summer which extended in varying degrees from Minnesota through the States of North Dakota, South Dakota and Montana, the revenues of your company for the year 1931 were reduced substantially below those of 1930.

Total operating revenues for 1931 showed a decrease of 21.8% from 1930 and 35.0% from 1929. Operating expenses showed a reduction of 20.5% from 1930 and 30.7% from 1929, which we consider a good showing since operating expenses of a railroad include such items as depreciation, retirement charges, a large part of maintenance expenditures, and other items which do not vary, or vary but slightly with the volume of traffic. Maintenance of equipment expenses for 1931, excluding charges for depreciation and retirements, were $14,608,369 compared with $24,694,922 in 1929 and $20,970,132 in 1930. They were $941,163 less than in 1916, when wages were on a much lower level and material prices were also lower.

Income

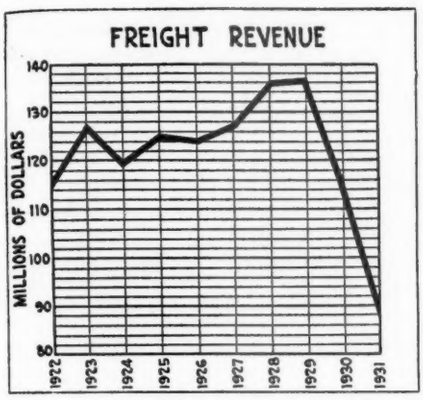
The following is a condensed income account of the company for the year 1931 as compared with 1930, which shows there was no net income of the company available for the payment of interest on Adjustment Mortgage Bonds. No interest on such bonds was declared payable for the year.

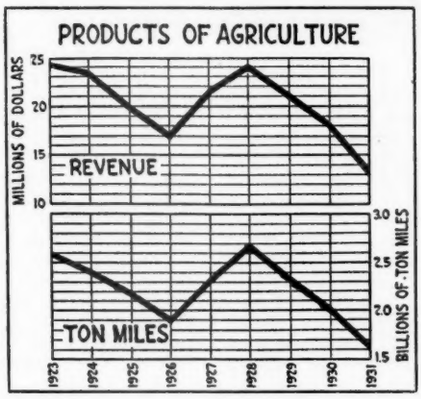
Condensed Income Account — Year Ended December 31, 1931

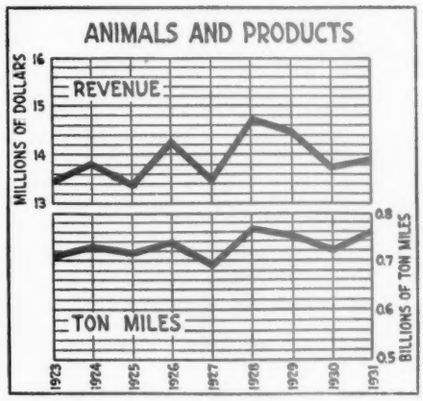
	Year 1931	Comparison with 1930 +Increase —Decrease
RAILWAY OPERATING INCOME:		
Railway operating revenues	$111,423,771.71	$—31,145,859.83
Railway operating expenses	89,269,445.97	—23,026,358.94
Net railway operating revenue	$ 22,154,325.74	$— 8,119,500.89
Railway tax accruals	8,723,000.00	— 778,000.00
Uncollectible railway revenues	20,321.84	+ 1,091.92
Railway operating income	$ 13,411,003.90	$— 7,342,592.81
Equipment rents—Debit balance	2,466,185.91	+ 402,086.20
Joint facility rents—Debit balance	2,610,411.80	— 124,537.34
Net railway operating income	$ 8,334,406.19	$— 7,620,141.67
NON-OPERATING INCOME:		
Rents from lease of road	$ 419,451.75	$+ 55,228.13
Rents received—Other	711,478.32	+ 58,233.31
Dividends on stocks	191,406.90	— 619,457.75
Income from funded securities:		
Interest on bonds and notes	398,277.05	— 339,398.83
Interest on advances to affiliated companies	17,899.40	+ 3,519.66
Income from unfunded securities and accounts:		
Interest on demand loans and deposits and time loans and deposits	96,449.29	— 272,430.46
Interest on equipment trust funds	619.83	— 4,493.08
Interest on bank balances	143,668.39	— 54,514.14
Miscellaneous interest	101,944.59	+ 55,969.34
Miscellaneous income	3,830.51	— 18,046.48
	$ 2,085,026.03	$— 1,135,390.39
Net railway and non-operating income	$ 10,419,432.22	$— 8,755,531.97
DEDUCTIONS:		
Rents paid—Lease of roads	$ 1,107,513.14	$+ 13,422.81
Rents paid—Other	44,890.65	— 18,427.56
Interest on unfunded debt	12,416.01	— 24,723.69
Amortization of discount on funded debt	26,061.77	+ 8,581.25
Miscellaneous	38,034.00	— 23,694.86
	$ 1,228,915.57	$— 44,842.05
Net income before deduction for interest on funded debt	$ 9,190,516.65	$— 8,710,689.92
Interest on fixed interest bearing obligations	13,859,591.02	+ 216,659.27
Net income before deduction for interest on Convertible Adjustment Mortgage Bonds (*deficit*)	$ *4,669,074.37*	$— 8,927,349.19
Interest on Convertible Adjustment Mortgage Bonds (5% accrued)	9,143,684.65	.....
Net income (*deficit*)	$ *13,812,759.02*	$— 8,927,349.19
Income applied to sinking and other reserve funds	9,977.50	+ 570.85
Debit balance transferred to Profit and Loss	$ *13,822,736.52*	$— 8,927,920.04

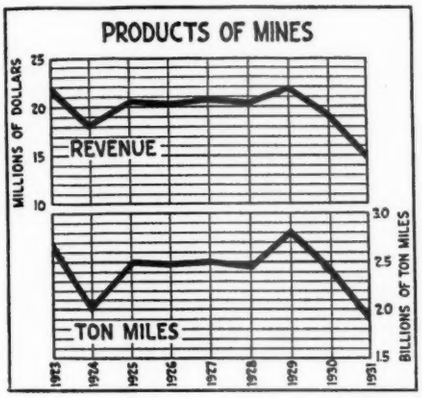
Italics indicate deficit.

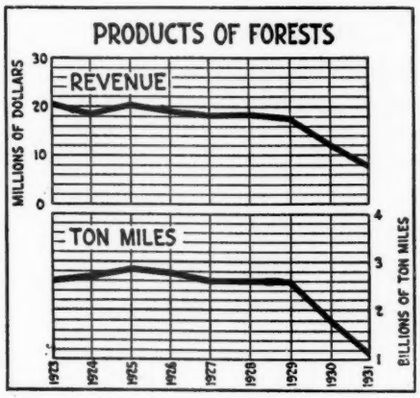
[ADVERTISEMENT]

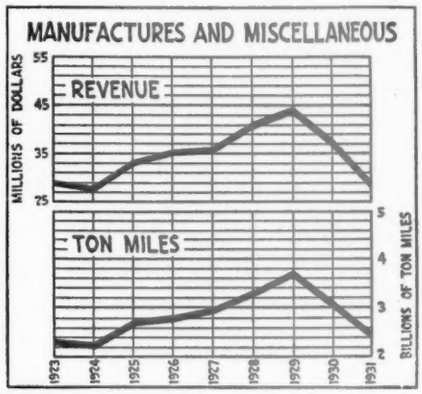


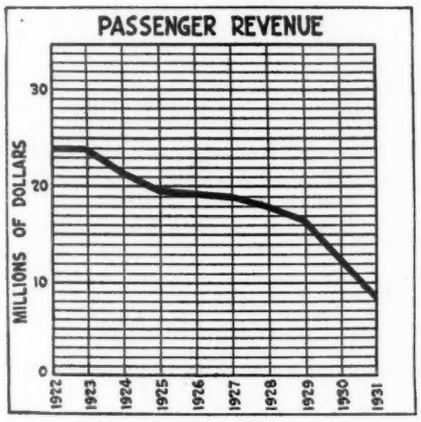


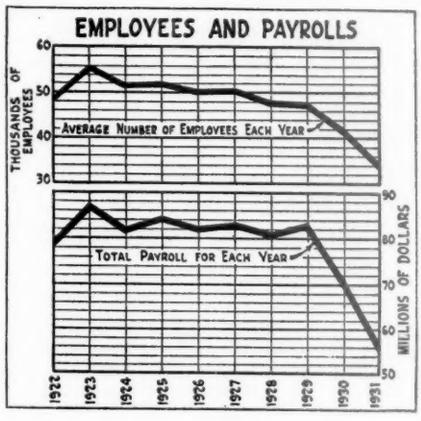


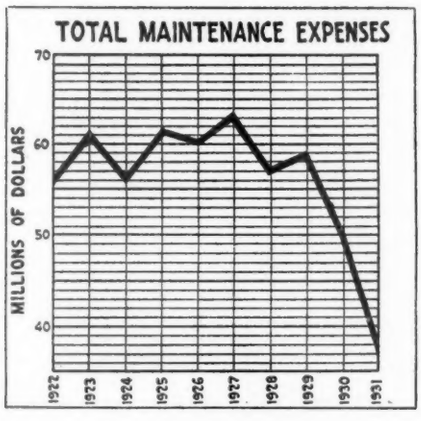


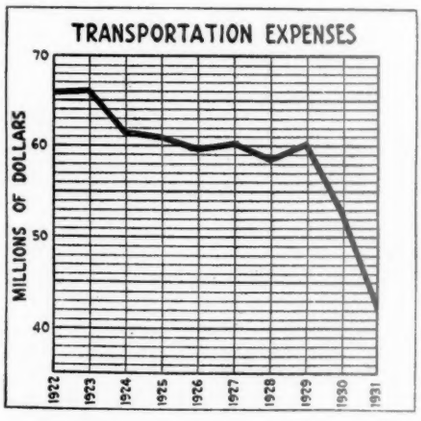












The average for the three years 1929, 1930 and 1931 was $20,091,141 and the average for the five years 1924 to 1928 inclusive, $28,699,004. While a large part of the reduction effected in 1931 was due to less work done, the reduction from the maximum of $38,000,000 in 1920 was also due to the purchase of new equipment, shop machinery, our new car shop at Milwaukee, greater efficiency and improved methods in shop organization.

Maintenance of Way and Structures expenses, exclusive of retirement charges, in 1931 were $15,613,150, as compared with $24,400,000, the average of the three years 1928, 1929 and 1930, and $23,700,000, the average of the three years 1925, 1926 and 1927. Here again, a large part of the reduction is due to curtailment of maintenance work, but substantial savings have been made through the purchase of roadway tools and machines and greater efficiency in methods and organization.

In comparison with the decrease in operating revenues of this company in 1931 of 21.8% the decrease for all other roads comprising the Northwestern Region was 24.2%, and for the Western District, 21.7%. Comparing the decrease in operating

[Advertisement]

expenses of this company in 1931 of 20.5%, the decrease for all other roads in the Northwestern Region was 19.1%, and in the Western District, 18.6%.

FREIGHT REVENUE for 1931 was $91,392,070 as compared with $115,638,093 in 1930, a reduction of $24,246,023 or 21%, and was the lowest revenue of any year since 1917. Revenue per ton of revenue freight was $2.72 in 1931 as compared with $2.65 in 1930 and the average revenue per ton mile in 1931 was 10.29 mills as against 10.59 mills in 1930. The average distance haul of revenue freight in 1931 was 264 miles as compared with 250 miles in 1930.

An analysis of the sources of freight revenue for 1931, compared with 1930, shows that the revenue from "Products of Agriculture" decreased $4,647,183 or 25.1%, and tonnage decreased 983,680 or 15.0%; revenue from "Animals and Products" increased $139,642 or 1.0% and tonnage decreased 30,811 or 1.3%; revenue from "Products of Mines" decreased $4,366,855 or 22.5% and tonnage decreased 4,024,395 or 24.2%; revenue from "Products of Forests" decreased $4,281,874 or 33.9% and tonnage decreased 2,117,356 or 39.9%; revenue from "Manufactures and Miscellaneous" decreased $8,341,353 or 22.0% and tonnage decreased 2,622,188 or 22.9%; revenue from L. C. L. freight decreased $2,748,400 or 20.8%, and tonnage decreased 252,205 or 20.4%.

Passenger Revenue

With the continued severe decline in passenger revenues, due to the competition of motor vehicles and the smaller amount of travel as a result of the depression, every effort was made, and is still being made, to reduce the cost of passenger train service by the elimination of train miles. Because of the requirements to provide certain local service it has not been possible so far to reduce the mileage in direct proportion to the loss in revenues.

Passenger revenue for 1931 was $8,952,421, as compared with $12,681,684 in 1930, a decrease of 29.4%. Total passenger service train revenue decreased from $21,207,785 in 1930 to $15,846,298 in 1931, or 25.3%. Passenger train miles decreased from 15,407,492 in 1930 to 12,655,599 in 1931, or 17.9%.

The number of revenue passengers carried during 1931 was 4,638,081 as against 6,078,523 in 1930.

Excluding commutation passengers, the average miles per revenue passenger carried in 1931 were 167.22 as compared with 149.74 in 1930; the average revenue per passenger in 1931 was $4.80 as compared with $4.64 in 1930 and the revenue per passenger per mile in 1931 was 2.87 cents as compared with 3.10 cents in 1930.

GENERAL BALANCE SHEET

Asset Side	As of December 31, 1931	Comparison with December 31, 1930 +Increase —Decrease
Investments:		
Road and equipment	$723,876,983.49	$+ 3,499,330.68
Improvements on leased railway property	$ 417,378.65	$+ 794.72
Deposits in lieu of mortgaged property sold	$ 27,890.54	$+ 2,608.24
Misc. non-operating physical property	$ 5,500,140.64	$+ 79,265.95
Investments in affiliated companies:		
Stocks	$ 5,366,158.90	$+ 1,017.50
Bonds	1,497,801.00	+ 364,000.00
Notes	10,530,144.67	+ 117,414.50
Advances	5,399,895.74	— 1,516,428.17
	$ 22,794,000.31	$— 1,033,996.17
Other Investments:		
Stocks	$ 7,580.90	$— 289.49
Bonds	127,250.00	— 39,000.00
Notes	353,947.03	— 102,134.69
Advances	5,000.00	+ 5,000.00
Miscellaneous	12,016.20	+ 9,620.41
	$ 505,794.13	$— 126,803.77
Total investments	$753,122,187.76	$+ 2,421,199.65
Current Assets:		
Cash	$ 13,001,104.75	$+ 876,550.71
Time deposits	5,002,876.20	— 3,312,746.63
Special deposits	88,746.72	— 113,072.10
Loans and bills receivable	574,217.17	— 4,945,582.10
Traffic and car-service balances receivable	382,466.87	— 178,339.34
Due from agents and conductors	2,166,052.32	— 659,198.26
Miscellaneous accounts receivable	2,462,790.18	— 301,761.09
Material and supplies	10,372,834.45	— 2,178,052.17
Interest and dividends receivable	461,243.59	+ 61,272.87
Rents receivable	.....	— 175.00
Other current assets	27,653.85	— 21,902.40
Total current assets	$ 34,539,986.10	$—10,773,005.51
Deferred Assets:		
Working fund advances	$ 63,613.22	$+ 6,669.00
Insurance and other funds	.....	— 114,215.35
Other deferred assets	2,461,756.18	+ 7,467.27
Total deferred assets	$ 2,525,369.40	$— 100,079.08
Unadjusted Debits:		
Insurance premiums paid in advance	$ 33,908.64	$+ 14,019.85
Discount on funded debt	447,610.84	— 26,286.72
Other unadjusted debits	2,913,119.74	— 189.559.45
Total unadjusted debits	$ 3,394,639.22	$— 201,826.32
Grand Total	$793,582,182.48	$— 8,653,711.26

Liability Side	As of December 31, 1931	Comparison with December 31, 1930 +Increase —Decrease
Capital Stock:		
Common Stock:		
In hands of public (1,174,060 shares —no par value)	$136,973,393.23	$+ 323,598.61
Preferred Stock:		
In hands of public	119,293,900.00	+ 13,800.00
Total Capital Stock	$256,267,293.23	$+ 337,398.61
Governmental Grants:		
Grants in aid of construction	$ 78,693.29	$+ 53,947.36
Funded Debt—Unmatured:		
Bonds:		
In hands of Public:		
Fixed interest bearing	$255,675,096.00	$— 15,000.00
Contingent interest bearing	182,873,693.00	.....
In Treasury of Company	11,220,000.00	+ 5,000.00
Pledged	58,000.00	.....
	$449,826,789.00	$— 10,000.00
Equipment Obligations:		
Equipment Trust No. 24 gold notes	3,834,000.00	— 1,420,500.00
Equipment Trust certificates	35,451,000.00	— 4,081,000.00
Equipment Trust Certificates in treasury	304,000.00	+ 81,000.00
General American Tank Car Corporation—Lease	1,004,257.30	— 45,430.97
	$490,420,046.30	$— 5,475,930.97
Less Bonds and Equipment Trust Certificates held in Treasury or pledged	11,582,000.00	+ 86,000.00
Total Funded Debt unmatured	$478,838,046.30	$— 5,561,930.97
Total Capital Stock, Funded Debt and Governmental Grants	$735,184,032.82	$— 5,170,585.00
Current Liabilities:		
Traffic and car-service balances payable	$ 2,245,256.50	$— 821,815.87
Payrolls and vouchers	6,007,677.01	— 1,587,836.05
Miscellaneous accounts payable	236,164.99	— 45,704.01
†Interest matured unpaid	3,174,830.65	— 56,504.95
Funded debt matured unpaid	4,000.00	— 4,500.00
Unmatured interest accrued	2,776,661.59	— 88,988.33
Unmatured rents accrued	317,326.30	+ 12,460.70
Other current liabilities	444,248.74	+ 73,686.13
Total current liabilities	$ 15,206,165.78	$— 2,519,202.38
Deferred Liabilities:		
Convertible Adjustment Mortgage Bond Interest accrued—Unmatured	$ 15,544,263.90	$+ 9,143,684.65
Other deferred liabilities	310,388.90	— 561,134.97
Total deferred liabilities	$ 15,854,652.80	$+ 8,582,549.68
Unadjusted Credits:		
Tax liability	$ 8,297,419.21	$+ 14,902.57
Accrued depreciation—Equipment	23,220,604.77	+ 6,198,920.13
Other unadjusted credits	3,401,337.60	— 143,354.51
Total unadjusted credits	$ 34,919,361.58	$+ 6,070,468.19
Corporate Surplus:		
Additions to property through income and surplus	$ 385,598.75	$+ 70,854.82
Funded debt retired through income and surplus	43,104.16	+ 9,466.13
Sinking fund reserve—Bell. Bay & Brit. Col. R. R. Co.	.....	— 872.50
Total appropriated surplus	$ 428,702.91	$+ 79,448.45
Profit and loss, debit balance	*8,010,733.41*	—15,696,390.20
Total corporate surplus (*deficit*)	$ *7,582,030.50*	$—15,616,941.75
Grand Total	$793,582,182.48	$— 8,653,711.26

Italics indicate deficit.
† Includes $2,864,040.50 payable January 1, 1932.

[Advertisement]